The Bradshaw Lecture

ON

JAMES SYME, REGIUS PROFESSOR OF SURGERY IN THE UNIVERSITY OF EDINBURGH 1833–1869.

A STUDY OF HIS INFLUENCE AND AUTHORITY ON THE SCIENCE AND ART OF SURGERY DURING THAT PERIOD.

Delivered before the Royal College of Surgeons of England on Tuesday, Dec. 12th 1894,

BY OLIVER PEMBERTON, F.R.C.S. ENG.,

PRESIDENT AND EMERITUS PROFESSOR OF SURGERY IN MASON COLLEGE AND CONSULTING SURGEON TO THE BIRMINGHAM GENERAL HOSPITAL; MEMBER OF COUNCIL, ROYAL COLLEGE OF SURGEONS OF ENGLAND; FOREIGN CORRESPONDING MEMBER OF THE SOCIETY OF SURGERY OF PARIS.

MR. PRESIDENT AND GENTLEMEN,—It is not, I venture to think, an inappropriate fulfilment of the intention of the founder of this lecture that, apart from some special subject of surgical science or practice that might be selected, the consideration of the career of a great surgeon could be chosen as affording material of the highest interest and value. More especially is this the case when it happens that the life in contemplation—that of James Syme—bestowed benefits, not only on the country of his birth, but on all countries where human suffering sought relief at the hands of surgery. Though upwards of twenty years have passed away since the death of Syme, I feel convinced that those amongst us who knew the man and his work, or those who can only learn what he was by his writings, will unite in a judgment that very few in the history of surgery have equalled him in his absolute devotion to his calling, and none have surpassed him in the utility of his practical suggestions for the preservation of the lives and limbs of his fellow creatures. If the earlier period during which Syme taught clinical surgery was not so striking in its developments as the later, arising from what followed the discovery of anæsthetics, the application of the antiseptic system, and the use of ligatures antiseptically prepared, it must be borne in mind that the difficulties surrounding the successful practice of surgery at that time were augmented and demanded the extreme of personal attention. Notwithstanding, Syme overcame them. His self-reliance, sagacity, and fertility of resource were his most assured endowments, and these he cultivated and matured as time went on and gave him experience. It may be truly affirmed that the period covered by Syme's commencement of practice and the resignation of his chair comprehended a period in the advancement of the science and practice of surgery—a space of fifty years unequalled in the history of the profession. To the last his mind was open to the adoption of additional means of simplifying the practice of surgery, and so long as these did not clash with those principles of thought and action which for ever guided him in his calling he would readily become the staunchest advocate of change. One cannot trace the career of a great surgeon without dwelling, if only for a moment, on some of the influences that contributed in early days to subsequent eminence. The thorough ascendancy with Syme,[1] as well as with those who preceded him, rested on the fact that he both learnt and taught anatomy. The foundation of the northern school of surgery, begun and maintained from the days of John Bell to those of William Fergusson, owed its solidity to this mastery of anatomy. The surgeons of Edinburgh as early as 1505, as provided by the first Charter granted to them, had to examine the applicant for admission to the Incorporation in Anatomy, and were to have a body for dissection once a year. This was a beginning culminating, in 1694, in the completion of the surgeons' anatomical theatre for dissection, and, finally, under Munro's influence, led to the establishment, in 1726, of the medical school of the university. It was not yet, however, that surgical anatomy, the only true guide of the operating surgeon, was placed in the front. This was reserved for John Bell, who secured its application by enforcing the practice of dissection.

No truer description of this illustrious man can be given than what is contained in the words of Dr. Struthers: "He was not only a bold and dexterous operator, but combined all the qualities, natural and acquired, of a great surgeon to an extraordinary degree. He was original and fearless, and a thorough anatomist; he had intellect, nerve, and also language; was master alike of head, hand, and tongue or pen, and he was laborious as well as brilliant." When this master of our craft was passing away in a foreign land[2] the subject of my present thought was entering his twenty-first year and acting as demonstrator of anatomy to Robert Liston, and not yet a Member of his College of Surgeons. To speak of the Edinburgh School is to call to mind that famous university which, wherever the English tongue is spoken, cannot fail to be regarded as having ever been pre-eminent in the making of our profession. If in its glorious past it stood well-nigh alone, distancing all competition, it will not, I am prepared to assert, be denied that in the present day, at least in certain respects, it maintains its claim to that pre-eminence. I say this without any thought of forgetting our English or our Irish schools, but until this metropolis obtains those facilities for conferring degrees adequate to the opportunities for study no less than to the character, the ability, and the thoroughness of the teaching it possesses, I shall not hesitate to regard our attitude towards the great body of the profession in our country as being unworthy of the position we assume, and which we have only to thank apathy and selfishness that it is yet possible to be maintained.

Liston gave up the teaching of anatomy in 1833. Syme took his place, continuing to teach for the next few years until he lectured solely on surgery. By this he attained that absolute confidence, based on anatomy, which he never lost, that speedily led to his successful application of operative surgery to the cure of disease. I have the expectation that when I shall have drawn attention to what he accomplished, and by what means it was brought about, the eulogium I have just quoted as having justly belonged to Bell will equally have been merited by Syme. In 1828, unconnected with any hospital, Syme performed for the first time in Great Britain the operation of excision of the elbow-joint. I cannot speak on this subject of excision of joints in connexion with his name without making a passing reflection on the strange vicissitudes of reputation that dogged the adoption by the profession of the most beneficent operation of the century in which he lived. Parks' suggestion in his never-to-be-forgotten words of the "total extirpation of the articulation" in his letter to Percival Pott in 1782 as a treatment for diseased joints, led only to its application in the knee so far as his actual work was concerned, and left to the Moreaus the distinction of carrying it out in the elbow in 1797—just two years previous to the date of Syme's birth. After the Moreaus the whole subject seemed to have slept until revived by Syme, who gave an account of what he had done in the first book he published—namely, a "Treatise on the Excision of Diseased Joints"—in 1831, he then having had an experience of fourteen cases. Undoubtedly to Syme alone belongs the merit of having substituted excision for amputation of the limb in regard to the elbow-joint. He succeeded because, as was ever his wont, he in the first instance established the principle, as alone calculated to secure success in the treatment of caries in joints by excision, that there must be complete cutting or scraping until sound bone was reached. He thus concludes his observations in his earliest record of cases: "The almost forgotten operation of Moreau will now again, perhaps, be reconsidered, and I hope make such a deep impression on the profession as may induce its practitioners to pause before they mutilate a fellow creature by amputating his arm for disease or injury of the elbow-joint." To this petition, modest and overflowing with humanity, no more fitting judgment can be available than that which has been written down: "If he had done nothing else, he would have been one of the greatest benefactors of the human race."[3] The success that attended this proceeding in the elbow led Syme, as time went on, to the belief that it was well to limit its performance to that articulation and the shoulder. As is well known, he dismissed excision of the knee: he tried it; he found the knee did not grow in proportion as compared with its fellow in one instance, and he thought, therefore, an artificial substitute would be more useful than the limb preserved by excision, and this conviction he recorded after the

[1] Historical Sketch of the Edinburgh Anatomical School. Edinburgh, 1867.

[2] John Bell died in Rome in 1820.

[3] Edinburgh Medical and Surgical Journal, 1870.

lapse of twenty years from his early experience. Time, however, in this has not verified the correctness of his judgment. Within ten years of its publication our late colleague, Sir William Fergusson, revived the operation of the knee by performing it at King's College Hospital, thereafter following throughout Great Britain for a good twenty years the contest between surgeons as to its mode of procedure—a contest ending in the attainment at this time of a well-justified estimate of its value in selected cases in adults and of the adoption of arthrectomy in children.

Fergusson, in dwelling on the period of inaction in his lectures delivered in these walls in 1867 on the Progress of Anatomy and Surgery, and referring generally to excision of joints, laments the supineness of the English surgeons in language almost pathetic: "Not a breath, not a pen, not a knife stirred in England on the subject." At the same time that he uttered these words he rendered to Syme the tribute that he recognised as due—that to him, and to him alone, belonged the establishment of the beneficent operation of excision of the elbow-joint when affected by disease or injury. Though tibio-tarsal amputation had been not infrequently performed on the Continent previously to Symes' operation at that joint, it is to him that the profession is indebted for its introduction and perfection in this country. In 1842, on Sept. 8th, the first occasion on which the proceeding was carried out—the new feature which has made the operation what it is—was established—that of securing the pad of the heel as the covering of the stump. Neither Velpeau nor Baudens seized this idea; flaps taken from the dorsum of the foot—from the skin above the heel—resulted in a line of union that exposed an integumental cicatrix alone to bear the pressure in locomotion—hence arose disappointment and comparative failure. That the pad of the heel retains its thickness after long years of pressure as the medium of support in the stump, and does not become thin and wasted, as in almost every other amputation, no matter where situated or with whatever flaps covered, is universally recognised by surgeons. Well might Syme write[4] "that he thought that this form of amputation might be advantageously introduced into the practice of surgery, and that he regretted the many limbs that might have been saved by it, and that he would be glad if what he had said in its favour might encourage others to its performance. In this operation, as in many others that we can readily call to mind, the originator was pestered by the suggestion of so-called improvements. These took the form in the main of the question as to the sources whence the coverings of the stump were to be derived. Syme from the first to the last always insisted on the value of the natural pad of the heel constituting undivided in the stump, the medium of pressure, in preference to any other covering from the neighbourhood of the joint. The lapse of fifty years has not lessened the value or humanity of this operation or altered the guidance recorded in the first instance as to the mode of its performance. The younger generation of surgeons, with their full knowledge of its excellence, may well wonder at my dwelling on the proceeding with emphatic comment. I cannot, however, forget that when I performed it in the General Hospital, Birmingham, in August, 1853—now forty years ago,—it was not even then, eleven years after its introduction, in general adoption, and had not previously been performed in the midland counties. I ventured three years later to communicate my experience to Mr. Syme[5] himself—to me then personally unknown—referring to its applicability to infant deformity, to adult disease as well as to injury. I received from him the following letter, in reading which I tender no apology, as it is not only surgically historical, but it evidences that moderation of tone in alluding to his brilliant proceeding, born, it may be, of some passing disappointment, and yet showing no trace of want of assurance of ultimate success, that is ever the greatest characteristic of genius:—

[COPY OF A LETTER FROM PROFESSOR SYME.]

Edinburgh, May 8th, 1856.

MY DEAR SIR,—The results of your experience are very gratifying to me, and will, I hope, tend to lessen the prejudice which still exists against the operation in some quarters. I beg to thank you for the expression of your approbation, which encourages me to persevere in pursuing the great object of my professional life, which is, and always has been, to render some service in improving the practice of surgery.

I remain, my dear Sir, yours very truly,

Oliver Pemberton, Esq. JAMES SYME.

It is with no ordinary feeling of pride that I recall to mind that the reception of this letter led to a friendship, surgical as well as social, that terminated only with life. Moreover, I was then that which I would I were now—a very young hospital surgeon—whilst the writer was in the zenith of his fame. Beyond this the circumstance illustrated a marked feature in Syme's character—that of cordially welcoming the younger members of the profession, hailing from any quarter, and discussing with them in social intercourse the story and illustration of the surgeon's art he loved so well. No subject has more widely elicited a difference of opinion than the treatment of stricture of the urethra. We are all of us familiar with the views of those who have in the past so variously and strenuously advocated the use of dilatation, of caustics, or of internal incision. After failure with dilatation and internal division in a case which came under Syme's care in 1840 he for the first time carried out the external division of the stricture; subsequent experience convinced him of the value of the proceeding, and in 1849 he laid his views before the profession. The principles involved in Syme's proceedings I must give you in his own words:[6] 1. "That there is no stricture truly impermeable, and that with time and care in every case an instrument may be passed through it and serve as a guide for the knife. 2. That all strictures which cannot be remedied by simple dilatation admit of effectual relief only through a free division of the contracted part of the canal. 3. That this object can be attained with certainty and safety only by an external incision in a line corresponding with the raphe of the perineum upon a grooved director passed through the stricture." The publication of these views gave rise to no ordinary controversy both in this country and in France, the main difference ranging between the advocates of internal as opposed to external division. The lapse of years should enable us to review with calmness this field of contention.

There are certain conditions in connexion with stricture to the existence of which hardly any of us will feel inclined to demur. In the first place, let me ask what is the meaning of the word "cure" in stricture? In simple stricture due to inflammation of the lining membrane of the urethra there is the "cure" by simple dilatation. In organic stricture, originally simply inflammatory, but becoming aggravated by neglect—or too frequently increased by ill-considered surgical proceedings—there is, properly speaking, no "cure." "Once organic stricture, always organic stricture," is my belief. It is in these cases of organic and permanent stricture where the induration has become non-dilatable, or cartilaginous, or where there is fistula, that Syme's views seem to me to commend themselves to our judgment. Believing myself in the permanence of these changes established in the urethra, whether by injury or disease, I have never looked with favour on any internal severance of the lining of the canal. Surely the methods employed to forcibly break up the obstruction are the means of artificially inducing the very conditions which have resulted from other and unavoidable causes; and I regard a shut-up wound in the internal face of the lining of the urethra as being attended by dangers to which an open wound on the outside face is exempt. For carrying into effect external urethrotomy there never was in Syme's plan any cutting without a guide; the extent of the obstruction was clearly and completely divided on a grooved staff passed through it in the middle line into the bladder: hence neither hæmorrhage nor extravasation followed. But how about obtaining this guide? Are there no impermeable strictures? In these Syme had no belief. Given time and rest, it was his opinion that no stricture ultimately resisted the passing of an instrument. On this hear his own words:[7] "I have never either publicly or privately been unable to pass an instrument since I became satisfied that there was no true impermeability." As to this question of non-impermeability I venture to express my own concurrence, always excepting those of traumatic origin where complete severance of the canal has occurred. Syme in 108 cases in which he performed external urethrotomy lost only two patients.

And now, what conclusions are we entitled to draw from the evidence I have adduced? Proof that Syme originated a treatment of stricture by external division in which treatment by dilatation and other means had failed; that this treatment maintains at this day the value claimed for it by Syme, bringing about a permanent relief from an intolerable and complicated malady—secured in most instances by no subsequent passing of instruments—the exception to

[4] Ibid., 1843.

[5] On Amputation at the Ankle-joint. Pemberton. London, 1856.

[6] Stricture of the Urethra and Fistula in Perineo. Edinburgh, 1849.

[7] Op. cit., p. 35.

this being the need that one might be wanted about once in three months, an undertaking that the patient can easily be instructed to manage for himself.

The study of aneurysm amongst surgeons in all countries has ever been one of deep interest. In Great Britain the names of Hunter and Jones, of Freer and Hodgson, of Syme and Bellingham, will ever be associated with the successful application of treatment for its relief. Here anatomy and pathology have truly been the guides of surgery. It is with diffidence, before an assembly such as this, that I mention that I have myself enjoyed opportunities[8] of inquiring into the value of various forms of treatment and of investigating some of those pathological changes in arteries and veins that lead to the production of some of the less common forms of the disease. Whilst doing this, however, you will, I trust, believe me when I say that it is for the express object of recalling the occasion in 1872 when, within these walls, Professor Holmes delivered his masterly lectures on the subject, to the illustration of which it was my great privilege to contribute specimens of arterio-venous communications, the results of ligature and pressure in the treatment of aneurysmal formations. These lectures, I need hardly state, gave an impetus that yet endures, and shed a clearer light on the more obscure points connected with their progress and remedy. This interest is naturally awakened in contemplating Syme's treatment of certain aneurysms of the most formidable character, in which, had he not deviated on his own initiation from the Hunterian principle that the artery should invariably be ligatured beyond the confines of the tumour, there had been none other ending save disaster and death. That he had a happy touch in dealing with arteries may well be believed, that since he tied the femoral artery thirty-five times with one failure from suppuration of the sac owing to the use of prolonged pressure and consequent derangement of the general health. To tie the femoral artery safely he suggests that the operation is one not of difficulty but nicety. "This nicety consisted in the use of a clean cut to open the sheath of the vessel, first seen lying white and free from surrounding bleeding from little vessels, then the vessel cleared in the same way of its cellular and fatty substance, and the needle can be passed without difficulty or danger."[9] Nothing in what Syme put in practice relating to the treatment of aneurysm affected the general view of the Hunterian operation in the great majority of instances. He argued that there were situations, such as was the case in certain axillary aneurysms, where the application of a ligature to the subclavian on the Hunterian principle promised nothing beyond misfortune; while opening the sac and securing both ends of the ruptured vessel, however difficult and arduous such a proceeding appeared, in his judgment promised, if it did not ensure, a favourable result. The belief that all parts of the artery included in the walls of the sac were unsound seemed to forbid the application of the ligature to any portion of the artery close to it, that being held, in all probability, to be unsound likewise. Reflection as to the modes in which spontaneous aneurysms most frequently commence and extend satisfied Syme that this need not be the case. Guided by this conviction, in 1857 he successfully treated a traumatic aneurysm of the carotid, too low for proximal ligature, by incision and ligature of both openings at the wound. Thus fortified, he operated on a patient forty-seven years of age on Feb. 1st, 1860, in the case of a large aneurysm situated in the left axilla, evidently a rapidly extending one of the axillary artery. The main difficulty and danger of the operation were overcome by the method in which a command over the artery was obtained before it was tied. This was accomplished by a preliminary incision whereby the finger of the assistant was enabled to pass down to the subclavian as it lay on the first rib on the outside of the scalenus anticus. Then the sac was opened freely and safely and its seven pounds of coagulated blood scooped out. The axillary artery was found to have been probably torn across. Its lower end, bleeding, was first secured, and then the upper end from under a divided lesser pectoral muscle. Complete recovery took place at the end of six weeks. A further proof of the correctness of the impression that Syme formed—viz., that the extent of an artery either close to or within the sac of an aneurysm is not necessarily unsound beyond the point of rupture, and therefore unfit for ligation—was afforded him in the need to amputate in two instances of axillary aneurysm at the shoulder-joint, the patient's age being fifty-two years in the one case and twenty-two years in the other case. The aneurysms were cut through in the operation, and the arteries tied where they lay within the sac. Undisturbed recovery took place in both cases.

In 1861[10] Syme thus treated a gluteal aneurysm. In 1862[11] he yet further corroborated his opinion in a case of iliac aneurysm in which the common—the external and the internal iliac—arteries were tied, and the argument that the size of the tumour does not depend upon the state of the vessel and therefore is not any measure of the extent to which its coats are impaired was again enforced. On April 20th, the aorta being controlled by Professor Lister with a screw clamp, a free incision was made into the sac, six pounds of blood and clot were emptied, the arterial opening into the aneurysm being obscured in its roof, the ligature was applied to this on both sides, and finally to the internal iliac as well. In all these cases the operation effected a cure. I have authority to state that Syme did not use any other material than the "small silk" in his arterial ligatures for aneurysm. It happened that Sir Joseph Lister in 1869, when about to publish his observations on the ligature of arteries on the antiseptic system, read to Mr. Syme the manuscript in the short interval that preceded his apoplectic seizure in that year. The only alteration suggested was, curiously enough, the introduction of the word "small" before "silk," so impressed was he with the value of a diminutive ligature rather than a large one. As a matter of fact, no case of aneurysm occurred in his practice after the catgut ligature, antiseptically prepared and applied, was introduced. Indeed, the catgut ligature was not ready for him before his illness; but he was quite alive to its importance, and took the keenest interest in an account he had received from Mr. Bickersteth of Liverpool—his former house surgeon—of a case in which he had used the catgut with perfect success.

In his treatment of wounds Syme had early the greatest aversion to anything like constriction in their treatment. He went so far as to express an opinion that union by the first intention happened more frequently in the days of Taliacotius than it does at present, for the great, I may say infallible, preventive of adhesion—I mean adhesive plaster—was not then invented. Hence followed his disuse of bandages and the use of compresses of linen. He liked the use of ligatures for the vessels with long ends, leaving the two ends hanging outside the wound, which served, he said, as drains for the pent-up blood and serum. That he was alive to the value of the "antiseptic method" his contribution to the subject in 1868[12] affords abundant testimony. The seven cases he adduces may be read with advantage in the face of our present knowledge of the value of the antiseptic treatment of wounds, as well as in recollection of the difficulties that beset its adoption by the profession when Syme wrote. These consisted of the removal of a parotid tumour, the treatment of a vast wound of the knee-joint, of two compound fractures of the leg—a psoas—and of a chronic and acute abscess. In all there were conspicuous the utter absence of fever, the repair without purulent formation, and its disappearance in the instances of its collection in the abscess cavities when opened. Well might he anticipate that such an improvement promised a great diminution of human suffering and danger. So satisfied was he as to the disappearance of suppuration by the adoption of this method that in his last clinical lecture, with which he concluded the winter course, he records that he had in his later practice abandoned the ligature in favour of torsion, as, this proceeding leaving no foreign body in the wound, he no longer wanted the two long ends. The evidence advanced is surely sufficiently striking and shows how enthusiastically he entered on the subject of the antiseptic system, and what perfect results he obtained from it with the comparatively imperfect means then at his disposal. Alas, that it should so have been that whilst the record of this conviction was not a year old his first illness took place, and in the summer of 1869 he resigned his chair of Clinical Surgery and his position of surgeon to the Royal Infirmary. The few words of Paterson rightly convey the attitude of Syme on this question: "Nothing," he says, "can more strikingly illustrate the freshness of his mind at this late period of his professional life than the readiness

[8] Aneurysmal Varix, Transactions of the Royal Medical and Chirurgical Society, 1861. Aneurysm, Address in Surgery, British Medical Association, 1872.

[9] Edinburgh Medical and Surgical Journal, 1866, p. 968.

[10] Transactions of the Royal Medical and Chirurgical Society, 1860.

[11] Ibid., 1862.

[12] Brit. Med. Jour., Jan. 4th, 1868.

with which he received so great an innovation upon surgical practice.

As Regius Professor of Clinical Surgery in the University of Edinburgh for thirty-five years—a chair that Syme really founded—an influence was exercised on the progress of surgery and the education of surgeons by the example he afforded that cannot too strongly be enforced. Following the method of Dupuytren, whose plan of teaching he had watched in Paris, Syme introduced the practice of bringing the patients before the assembled students, and pointing out the diagnostic characters to them, then discussing the principles and details of the treatment to be adopted, and either putting it in practice at once before them or, in the case of a major operation, doing it some other day when they were prepared to follow the steps of the procedure with profit. At the bedside a short exact statement of the case led up to the diagnosis, which was briefly and happily explained. What he had to do was done quietly and with deliberation. He was never flurried, and taught as much, if not more, by what he did than by what he said. Specially he had the faculty to train surgeons—he insisted on the value of caution limiting their judgments ere the issue of any given case was fairly apparent. The love of his life was the study of surgical diseases that admitted of cure by operation. Here he was the surgeon in all respects, for though he investigated the action of the periosteum in forming new bone and proved it by facts—now corroborated by more remarkable instances than he then adduced—this was wellnigh the only departure after engaging in practice he took from his favourite pursuits. This contribution to surgical science was entitled, "On the Power of the Periosteum to form New Bone."[13]

Syme based his conclusion that the periosteum had the power to form new bone independently of any assistance from the old one, and from his well-known experiments on the radius of the dog, in which an inch and three-quarters having been removed together with the periosteum it was found at the end of six weeks that no new bone filled up the gap, whereas in the other leg similarly treated, but without the periosteum being removed, which was carefully left entire except where the slit was open in front, it was found that a compact mass of bone occupied and more than filled the space left by the portion removed.[14] In his student days, however, Syme appreciated the value of scientific researches, for he worked diligently and under great difficulties at chemistry—his laboratory a cellar, shared with his fellow student Christison.[15] His discovery of a solvent for caoutchouc in his twentieth year was important, and was permanently valuable to others if not to himself. Throughout his life he was a master of botanical science, both theoretical and practical. Like Brodie, born some sixteen years before him, Syme was, I would maintain, not indifferent to the value of "science" in the study of surgery, and he would, I feel satisfied, have been the first to acknowledge, despite his intense devotion to the "art," the justice of the comment on Brodie, "whose life was said to have proved to demonstration, by a long and admirable career, that devotion to purely scientific pursuits and a deep interest in all concerning scientific progress may coexist with eminent professional skill, with a philanthropic spirit and an enlarged religious mind."[16] Further, in the Hunterian Oration delivered at this College on Feb. 14th, 1887, Mr. Savory, our then colleague, discusses the value of a knowledge of physiology to the surgeon, questioning the extent to which it should occupy the attention of the student of surgery, at the same time laying down the principle that "some knowledge of physiology is essential to the surgeon." With this we shall all agree. Of Syme it has been said that with him the art of surgery rather advanced than the science. Admitting that in the practice of the art he was supreme, I would ask by what other than by first mastering its science was he enabled to obtain that knowledge of the principles of surgery which, after long thinking over, he was enabled to apply to its most effective practice as an art. Syme was never in his severest trials of operative surgery, when human life hung on the thread his fingers controlled, like the mariner without his compass; or if strange difficulties arose, as Mr. Savory writes, what then? I answer that Syme ere he started on his voyage first satisfied himself as to the course which his principles mapped out for his adoption; and whatever difficulties, however startling, beset him, the science of his calling, which in its principles he studied and worked out again and again in his career, steadied and aided him and carried him to success in the application of its practice. Would that the time allotted me permitted of further reference to this subject of science and art in our calling as dealt with by Sir William Savory; I will only say that it comprises in my view all that can be said to rivet our attention to the importance of the union between them being for ever inseparable. Conspicuous amongst Syme's qualities was that of absolute self-reliance. With few friends and less money, wanting a hospital for practice and hopeless of appointment at the infirmary, during eight years he carried on an independent teaching of systematic surgery and started himself a hospital that lasted for four years and closed to him only when the infirmary doors were opened. Here, says Professor Annandale,[17] he originated and practised the method of real clinical teaching which was destined to make his clinical surgical teaching in connexion with the university so complete and so great a reform. As an operator Syme never contemplated display. Deliberate, absolutely cool, undismayed by the advent of the unexpected, he appeared to have foreseen what would happen and was ready to encounter any emergency. His entire being was concentrated in the one thought—as to the safest means whereby he could relieve his patient. With few instruments, with anatomical knowledge complete for his purpose, he never felt he could fail. If bleeding occurred during an operation it was rare for him to stay the knife. He went straight on and completed the operation, and then arrested all hæmorrhage.

In the past history of eminent surgeons how true it is that a partiality becomes manifest for certain operations to the exclusion of others; perhaps this arises from the knowledge of what it is that we do best. Thus Syme did not excel in lithotomy and hardly practised lithotrity, and it was with difficulty he admitted any value to pressure in the treatment of aneurysm. Stone, it is true, was not as common in Edinburgh as in the northern parts of Scotland, nor as about Norwich or the midland counties, as Warwick and Stafford, in England; hence the opportunities for its frequent performance hardly may be said to have existed. If on the subjects of excision of joints, of urethral stricture, of amputation at the ankle-joint, and the treatment of aneurysm I have chosen to dwell at some length, it is because on the repute connected with their development and growth inseparably depends the abiding character of Syme's fame as a surgeon. These alone suffice to establish its solid foundation, but the monument would not be complete did I fail to mention yet other examples of his originality and marvellous sagacity in carrying into effect practical surgery with a boldness, in regard to operative treatment, never previously deemed applicable for their relief. He was the first to excise the superior maxillary bone, to subcutaneously divide the sterno-mastoid for wry-neck, and to disarticulate the clavicle. He dealt successfully with the removal of the scapula, together with amputation of the whole extremity. Lastly, he pointed out the exact treatment of an agonising malady—fissure of the rectum. There must have been with Syme's nature an endowment that enabled him at an early date in his career to undertake formidable operations, to the successful issues of which he was guided alone by the faculty of being able to think for himself. Here was the keynote of his success, and as he began so he ended. Let me illustrate this, as the whole history of the case I am about to mention abounds with features typical of his surgical character, the soundness of his pathological knowledge, his clearness and accuracy of diagnosis, the immense importance he attached to a serious case, his sanguine confidence when he felt sure of his principles, and his dauntless courage.

In 1827 he removed the greater part of the inferior maxilla in a young man twenty years of age. The growth, which involved the bone, was of enormous size, and had already been examined by Mr. Liston (then his senior colleague in teaching anatomy), who had refused to interfere. "The

[13] Transactions of the Royal Society of Edinburgh, vol. xiv. Read March 6th, 1837. Question: "Whether the periosteum or membrane that covers the surfaces of bones possesses the power of forming new osseous substance independently of any assistance from the bone itself."

[14] Paget in Lectures, 1863 (Ed. Turner), p. 184, referring to the importance of the periosteum in the formation of new bone and confirming the truth of recent observations made in France by Flourens, Ollier, Demaequay, and others in reference to the establishment and extension of this power of the periosteum, speaks of them as "facts" long since proved by Syme and now corroborated.

[15] Annandale: Address, Edinburgh, 1877

[16] Acland: Sketch of Brodie's Life for the Royal Society.

[17] Op. cit.

mouth was placed diagonally across the face, and had suffered such monstrous distension as to measure fifteen inches in circumference. The throat of the patient was almost obliterated in appearance, there being only two inches of it visible above the sternum, so that the cricoid cartilage of the larynx was on a level with that bone. When the tumour was viewed in profile it extended eight inches from the front of the neck." Syme, having satisfied himself that the tumour was not malignant, and confident in his diagnosis, felt that it was susceptible of removal. Success crowned the work—the result fully justified his practice. The patient completely recovered and twenty-six years afterwards presented himself, having come from America in perfect health. When it is borne in mind that Syme was then but twenty-seven years of age, outside the pale of hospital support, and that the removal of tumours of the jaw was a comparative novelty, the striking character of this proof of his operative skill is truly remarkable. Sir Joseph Lister, who possesses this trophy of the ability of his illustrious father-in-law, enables me to afford you an inspection of the specimen and of the picture taken before operating. Sixty-seven years have elapsed since the operation was achieved. The fame of the operator endures, and I venture to say will endure so long as the story of a great surgical career continues to be held in admiration.

Here I pause. You, my audience of to-day, must be the judges as to whether or not my narrative of the beneficent surroundings that inseparably connect themselves with these measures carried out by Syme for the cure of disease justifies the conclusion that in the contemplation of his professional life we see an authority in the practice of our art approached by few and surpassed by none. I appeal to that wider audience, the members of our calling in these islands, in our colonies, and wherever English surgery is known, to join in agreement with this conviction.

A Presidential Address
ON
THE STUDY OF EPIDEMIOLOGY.

Delivered before the Epidemiological Society on Nov. 16th, 1894,

By SHIRLEY F. MURPHY,
MEDICAL OFFICER OF HEALTH FOR THE ADMINISTRATIVE COUNTY OF LONDON.

GENTLEMEN,—It is my first duty to thank the members of the Society very sincerely for the honour they have done me in electing me their President. The roll of Presidents contains the names of many of the most distinguished members of our profession whose labours have added to our knowledge of disease, and especially of the particular class of disease which this society was founded to study. I fully recognise, therefore, that it is no slight honour to succeed those who have in the past shed lustre upon the society's proceedings, and I am none the less conscious how greatly it adds to the responsibilities of one who, by your favour, is called to the presidential chair. Not the least of these responsibilities is the choice of a subject which may fittingly engage your attention on the occasion of the first meeting of the session, for, thanks to the activity of our secretaries, each topic of current interest is brought to our notice during the ordinary meetings of our society, and where the harvest is so well gathered it is no easy task to find a portion of the field which has not already yielded to you its fruits. I may, perhaps, be pardoned if, under these circumstances, I content myself with a brief reference to the intentions of the founders of epidemiological study and indicate the position of our knowledge in respect to a few of the conditions which affect epidemic disease.

The study of epidemiology had been strongly urged by Hecker in 1832. In his Address to the Physicians of Germany, with which we are familiar in connexion with his work on the Epidemics of the Middle Ages, he stated his desire to "impress on them a subject in which science is deeply interested, and which, according to the direct evidence of nature herself, is one of the most exalted and important that can be submitted to the researches of the learned." "I allude," he said, "to the investigation of epidemic diseases on a scale commensurate with the extent of our exertions in other departments, and worthy of the age in which we live." He contrasted the scientific study of individual diseases, and the success which had attended it, with the neglect of the study of the "diseases of nations," and pointed out that "the doctrine of epidemics surrounded by the other flourishing branches of medicine remains alone unfruitful, we might almost say stunted, in its growth." Hecker's demand for the study of epidemiology did not long remain without response in this country. The need for such study had been emphasised by the disaster inflicted upon the English population by the cholera epidemics of 1832 and 1849, and the time was more than ripe for more systematic study of the conditions which fostered disease. Of the past there was much historical record showing the progress of disease from one country to another, showing also the association of unwholesome conditions with exceptional prevalence of epidemic maladies, but wanting more exact definition of the relation of each of these unwholesome conditions to the spread of particular maladies. Further, there remained the need for explanation of the behaviour of certain epidemic diseases not, so far as was known, constantly present in our midst; explanation of the circumstances which endowed an Asiatic disease like cholera with power to visit Europe from time to time, while it absented itself in the intervals, or which at times gave to an endemic disease like small-pox a new power of dissemination, enabling it after certain intervals to exercise a far more destructive influence in one period than in another. That such occurrences did not escape observation the literature of the past abundantly shows. They afforded, as they do still, ground for speculation, but the material for their exact study did not at the time exist. It was this need which the founders of our society felt, and for them there was encouragement in the fact that England had, among other countries, instituted a system of registration of deaths and causes of death, the necessary foundation of exact epidemiological inquiry.

At our social gatherings Sir Benjamin Ward Richardson has told us of the beginning of our society, of the thoughts possessed by those who were its founders. For our part we look back upon those early days with gratitude, and with appreciation of the foresight of those who at that time saw the possibility of the acquisition of a fuller knowledge of epidemic disease. For their use they had the history of the past, a history full of interest, but involved in much obscurity, and useful rather in giving incentive to the study of epidemic disease than in affording material for explanation of its phenomena; for the study of existing disease in this country they had the old Bills of Mortality and some thirteen years of the better records of the Registrar-General; there was ample field in the study of the geographical distribution of disease, its altitudinal range, the character of the soil of the localities where it prevailed, the climatic conditions which appeared to foster it, and the character of the population which it most infected. There was, moreover, the important question of the means by which it was disseminated, and the speculation whether this was brought about by some contagium produced in the soil, or in the bodies of the sufferers, or in the animal or vegetable life with which they were surrounded. How broad a view the society has always taken of the work before it is shown by the admirable "Objects paper" of the society, which indicates the subject matter demanding the study of the epidemiologist. In this excellent statement we are told that the epidemiologist must include in his studies the great group of idiopathic fevers, the sanitary condition of places and dwellings, topographical medicine, the geography of epidemic and endemic diseases, the chronology of epidemics, and he must also obtain knowledge concerning epizootics and epiphytics. It is clear, therefore, that the society, while recognising the necessity of studying the behaviour of human disease in respect to time and place, was in no way disposed to limit its studies to human disease in seeking explanation of the circumstances in which such disease is caused.

Some ten years after our society was instituted Professor Hirsch produced his admirable work on Geographical and Historical Pathology, which he dedicated to the society. He states in his preface to the second edition of this work that his task had been "not merely to collect and reduce to order an almost unmanageable heap of materials—for the most part a *rudis indigestaque moles*—and to test critically their authenticity and fitness, but it more particularly involved the founding according to a design, and the building up according to a system, of a discipline which had been the subject of but little labour before; and had still to make good its right to a place among the medical sciences." Further, he felt himself able to claim that his first edition

had "given an impulse to the further cultivation of this field of medical knowledge," and "that the progress made within the last thirty years by this discipline with the decided influence on the course of etiological inquiry, and its infusion into it of a more scientific character," had been connected in no small degree with the publication of his book. Professor Hirsch had, in fact, culled from all sources the material required for his purpose, he had digested this material, and had, so far as he could, apportioned to each statement the value which attached to it. The reader of his book is thus able to appreciate the "discipline" to which he refers. The choice of this word by Dr. Creighton, who has thus translated Professor Hirsch's own word *Doctrin*, is excellent, for it embodies the very essential of epidemiological inquiry. Professor Hirsch has necessarily been obliged to rely very much upon the observations of others in the preparation of his work. He groups the subject matter which he thus collects under certain well-defined headings; he gives such account as he can of the past history of the disease; he discusses at length its geographical distribution in our own times; he contrasts the peculiarities of epidemics of the disease under consideration with those of epidemics of other diseases; the influence of seasons and weather is especially dwelt upon. The influence of soil, the difference in the type of the disease at one time and at another time, the nature of the virus, and the method of its diffusion, are all subjects he discusses separately. He has shown (to use his own words) a design, a discipline, which must be followed by the student of epidemiology.

Our society may properly claim that its members have not been unmindful of this necessary discipline. Whether in papers read at our meetings or in investigations conducted in their several official capacities, they have demonstrated that they are working on intelligible lines. It is right that we should recognise how much the progress which has been made is due to the methodical inquiries into the circumstances attending disease prevalence which have been conducted by the medical staff of the Privy Council and Local Government Board. These investigations have provided definite object lessons for epidemiologists throughout the country. They have indicated the subject matter to which attention should be directed and the method of its investigation; they have enabled distinction to be made between conclusions based upon the accurately observed behaviour of disease and generalisations which are based on insufficient data. It is not often, however, that the work of the investigator immediately supplies material for the formulation of conclusions. Usually the truth is only appreciated after a series of observations, each of which gives some indication well deserving of record. We must, therefore, be prepared to recognise that our matter is often only suggestive—is, perhaps, sufficient only for provisional hypothesis; and so long as we abstain from attaching to it a greater weight than it deserves we may with advantage submit it to the criticism of those who with ourselves are endeavouring to solve the same problem. It is such a purpose that our society is best qualified to serve, and in proposing to submit for your consideration a brief account of a few of the circumstances that appear to influence the behaviour of epidemic disease I shall not hesitate to include certain indications supplied by the London records of notification of infectious disease.

I desire in the first instance to refer to seasonal changes in the prevalence of epidemic diseases. Much skill has been shown in designing methods for studying the relation of disease prevalence to meteorological conditions. In the beginning of 1875 Mr. Alexander Buchan and Dr. Arthur Mitchell presented to the Scottish Meteorological Society an important paper in which was shown in diagrammatical form the weekly excess or defect of mortality in London from different diseases in relation to the mean of thirty years. The results thus obtained enable comparisons to be made between the mean mortality and the mean meteorological conditions of each week in these thirty years. In 1878, dealing with the subject in the same manner, comparison was made between London and New York, and the mean meteorological conditions of the latter place were given. The one city can therefore be compared with the other in respect of their mortality and meteorology, and broadly the meteorological conditions which are related to excess or defect of the disease can be appreciated. No one who studies the diagrams for these two cities can fail to be struck with the fact that while, broadly, the "curves" for small-pox, diphtheria, diarrhœa, and typhoid fever are generally similar in London and New York, that of scarlet fever is very different. The mortality from this disease, which in London is below the average from January to July, is above the average in New York from January to June, and while in London above the average from August to December is in New York below the average from July to November. Again, while London suffers from excess of mortality from measles in the months of April, May, June, and July, and again in November, December, and January, the excess in New York is limited to the first seven months of the year. It has, indeed, but one period of excess instead of two, as in London. There is, however, a depression in the New York curve in March and April, which, if exaggerated to a defect, would give the disease two maxima as in London. Whooping-cough has in New York an autumnal excess as well as a spring excess, whereas in London whooping-cough has only a spring excess. Diarrhœa has in both cities curves resembling each other, the summer excess occurring some weeks earlier in New York than in London, and so again the enteric fever maximum of New York is earlier than that of London. Dr. Thomas Borthwick of Adelaide, in an interesting "Contribution to the Demography of South Australia," published in 1891, has given the seasonal curves of mortality of the principal zymotic diseases in that part of the world. The numbers on which the curves are based are small, but they are, notwithstanding, interesting for the purposes of comparison with those of London. Diarrhœa behaves much as it does in London, and occurs especially at the hot season of the year; the excess is, however, of longer duration. Enteric fever, too, occurs as in London, if we allow for the difference in seasons. Whooping-cough corresponds with the London curve in having one excess, and to this extent differs from that of New York; but the maximum occurs two or three months later if the South Australian and London year be made to correspond in respect of season. The measles curve more nearly approaches the London curve in having two periods of excess, but measles in South Australia declines to be influenced by the difference between London and Australian seasons, and behaves more as if its prevalences were determined by other conditions which are synchronous with those of England and independent of temperature. Scarlet fever has its maximum somewhat later in South Australia, if allowance be made for difference of season; both in London and in South Australia it prefers for its full development a moderately warm temperature of about 50° F.

Turning to the records of the Registrar-General of England, we find, in his annual report for 1884, material enabling comparisons (though for periods of different extent) to be made between the seasonal mortality from measles in London, in three groups of other English towns, in Scotch towns, in Paris, and in Berlin, and it is seen that the winter excess of London is only shared by two groups of the English towns, and by none of the others. Again, taking from the reports of the Registrar-General the deaths from scarlet fever in each week for six years in various Continental towns, it may be seen that while Stockholm and St. Petersburg have their greater mortality in the first quarter, Vienna and Paris in the second, and London, Berlin, and Budapest in the early weeks of the fourth quarter, Berlin and Budapest agree in having their lowest mortality in the first quarter, and are closely followed by London; Stockholm and St. Petersburg have their lowest mortality in the third quarter, and are closely followed by Paris and Vienna. Such agreements and differences are naturally associated with climatic conditions, but as soon as we begin to investigate the influence of such conditions on the prevalence of epidemic disease, we realise the complexity of the problem we are endeavouring to solve. We accept at once that diarrhœal prevalence is intimately related to temperature; we are disposed to accord to temperature a power of influencing some other of the diseases of this class; moisture of the air is also no doubt a factor which must be considered, and more recently reason has been given us for including the effect of sunlight among the possible or even probable conditions.

How great are the difficulties with which we meet when studying climatic conditions may be appreciated by reference to a recent work by Körösi of Budapest, who has investigated the effects of temperature and moisture of the air upon the number of attacks of several zymotic diseases in Budapest. He says: "The phenomena to be observed (in this instance the number of cases) must, as in experiments, be exposed to the supposed causes, and then studied with a view to ascertaining whether with decreasing or increasing strength of the causes the effect (number of cases) increases

or decreases. Such conclusions are the more reliable if the increase and decrease of the causes follow some system so that the strength is altered by gradations; the more numerous the steps of the causal ladder, and the greater the constancy of the results, so much the more forcible is the proof of the cause." Körösi's method is to divide the whole time under observation into periods, and to calculate the number of attacks in each; he then combines into the same group all the periods in which the causes behave with equal intensity and thus obtains a number of groups which he arranges in order based upon the intensity of the causes, with a view to learning whether the number of cases varies with the degree of intensity of the cause. This method of grouping, he points out, unites periods chronologically far apart, and he states that as regards the physical or chemical action of cold or heat it is of no consequence whether this is observed in spring or in autumn or in one decennium or another. If warmth or moisture were the only causes which influence these diseases, he contends that according as these causes were stronger or weaker the effects would be greater or less. He recognises, however, that this hypothesis is untenable and that other influences are at work, and he claims, therefore, that it is enough if his method gives indications. He points out a further difficulty—that it is possible prevalence may be dependent on only one factor, the other being merely a concomitant. If a particular disease increases during very dry weather it may be really due to conditions of temperature, because the hottest days are the driest; he therefore selects periods when the moisture is uniform and the temperature variable, and, again, periods when the temperature is uniform and the moisture variable, and observes the number of cases in each period.

Körösi gives the following results of his investigations of diphtheria, scarlet fever, and measles during the ten years and a half 1881 to 1891.

Diphtheria.—Most diphtheria cases occurred in times of moderate temperature. Great cold, equally with great heat, seems to hinder the spread of the disease. Nothing definite can be said as to the influence of moisture of the air, but it is probable that in the dampest days the number of cases increases. Moderate temperature, especially in damp weather, caused the greatest increase of cases.

Scarlet fever.—Generally speaking, with a rising temperature there was an increasing tendency for the cases to become more numerous. A mean temperature was most favourable to the spread of the disease, while the coldest days were most unfavourable. In cold, moderately warm, and warm days increasing moisture likewise aided the disease; but this was not found to be the case in the hottest weather, consequently Körösi regarded the influence of moisture as uncertain. The greatest number of cases occurred in moderately warm and at the same time very damp weather.

Measles.—The investigation gives but little information as to a positive influence of temperature and moisture on the behaviour of measles. The wettest and at the same time the coldest days have shown themselves most favourable to the spread of measles. It is possible, though not yet finally proved, that with an increase of temperature and a decrease of moisture there may occur a decrease of the disease.

I have dwelt upon Körösi's work because it is that of an able statistician who has applied a particular method to the complex subject-matter which the epidemiologist has to examine in any attempt to learn the relation of these conditions to the prevalence of the diseases with which we are concerned. This method would, I believe, eventually afford a basis for comparing the effects of temperature and moisture on such prevalence; but the difficulty which attends it is probably that the other factors concerned in this prevalence exercise such an overpowering influence that it would take very many years before the factors of temperature and moisture could make their influence manifest. This is, of course, no reason for distrusting the method, but it is reason for postponing our conclusions until the material which is thus examined is sufficient to overwhelm such disturbing elements as prevalences due to other causes. Nevertheless, the statistical indications of Körösi's work—and he himself regards them only as indications—are to this extent of undoubted value.

Dr. Longstaff approached the same subject in another way. He showed diagrammatically the annual percentage excess and defect of several diseases in relation to the mean of twenty-five years, and he showed in the same way for each of these years the percentage variation of both the rainfall and the number of rainy days, and added them together. These conditions can therefore be compared with the amount of prevalence of the disease, with the result that a very close correspondence between the two is observable. These meteorological conditions and the prevalence of pyæmia, puerperal fever, erysipelas, and rheumatism of the heart are, speaking generally, in inverse proportion; and to the extent of a faint echo there is some suggestion that laryngitis, quinsy, croup, diphtheria, and cynanche maligna are subject to these influences. It cannot be said that there is more than a general tendency in this direction, but the correspondence is such as to give the impression that, while other conditions are also concerned in these prevalences, rain cannot be entirely set aside. Dr. Astley Gresswell, in his "Contribution to the Natural History of Scarlet Fever," observes the same inverse relation between rainfall and scarlet fever prevalence; he showed the records of both in each of the years 1862-87, and also in groups of three or four years, and thus compared the rainfall in different years and different groups of years with the amount of scarlet fever mortality. He found the rainfall and scarlet fever prevalence in inverse proportion, and comments on "the constancy with which scarlatina mortality has risen in dry and fallen in wet years; when the rainfall has been very heavy, scarlatina mortality has been low, and when the former has been very light the latter has been high." Dr. Gresswell also found that scarlet fever diminished during the first of a series of wet years, and in some cases it still further decreased during the second; hence, he says, "it may be suggested that not only the rainfall of the year, but also that of prior years, has influence on scarlatina." Dr. Gresswell's observations are not to be regarded as antagonistic to those of Körösi, who himself considered the influence of moisture as uncertain. Further, Dr. Gresswell recalls to our minds that rainfall does not stand alone among meteorological elements influencing scarlatina prevalence, and that there are many others in relation to it, such, for instance, as want of bright sunshine.

The effect of light upon the prevalence of communicable diseases demands more detailed study than it has yet received. It may be that the decrease of small-pox during the summer months is in part due to this condition, and certainly the recent observations of Dr. Arthur Ransome and Professor Sheridan Delépine on the "Influence of Certain Agents on the Tubercle Bacillus" are in this respect very suggestive. These experimentalists exposed tubercle bacilli to different conditions of light and air, and subsequently tested their virulence by the inoculation of guinea-pigs. I may state the results of their experiments in their own words: "So far as they extend at present they show (1) that finely divided tuberculous matter such as pure cultures of the bacillus or 'tuberculous dust' in daylight and in free currents of air is rapidly deprived of virulence; (2) that even in the dark, although the action is retarded, fresh air has still some disinfecting influence; and (3) that in the absence of air, or in confined air, the bacillus retains its power for long periods of time." Numerous experiments have demonstrated the inhibitory action of light on the bacillus anthracis, and more recently Professor Marshall Ward has shown that the bactericidal action of the sun's rays is due to those in the blue violet half of the spectrum. There may, of course, be differences in the power of the several contagia to resist the influence of solar rays. Professor Marshall Ward has indicated such differences in the lower forms of vegetable life, and has associated them with the protection afforded by some colours against the chemical action of light upon some oxidisable body like a fat in the spore, the colour of the spore appearing to determine the ability of the fungus to grow in exposed places. In our study of the contagia we may expect to learn more of the action of light in determining the prevalences of the several epidemic diseases.

Social changes in the population may be expected to be reflected in the behaviour of epidemic diseases, and I therefore select to-night for consideration the results of the study of the effects upon communicable disease of that condition familiarly known to us as "school influence." The influence of school attendance on diphtheria prevalence at Brailes in 1876 was demonstrated by Mr. [illegible]. H. Power, and in the following year Dr. Thorne Thorne, in a report on diphtheria at Coggeshall, showed the special incidence of the disease upon children at the school-age period of life. In 1883 Mr. Power, in discussing a prevalence of diphtheria at Pirbright, in Surrey, pointed out differences in the behaviour of the disease in successive periods when the local school was open or closed. I do not propose to refer in detail to

Mr. Power's elaborate analysis of the circumstances of this outbreak, but will content myself with saying that it was worthy of the investigator, and that it fully justified his conclusions that "no doubt" could "be entertained that conditions of school life played an important part in the speciality of the incidence of grave disease in children 3–12 [years of age] in Pirbright." Since attention was thus directed to the part schools can play in giving opportunity for the dissemination of infectious disease, there have been numerous records of such occurrences, and the question is properly raised whether, with increased facilities for education, which are necessarily accompanied by aggregation of children in schools, there has not been some manifestation of this change in our death returns. But should we necessarily at once find evidence of this change in increase of prevalence of disease? Later, I shall refer to another factor in the determination of prevalence which might tend to obscure any influence which the change in question would exercise. Prevalence of disease, in fact, is due to other conditions than mere opportunities for diffusion, and we might not, therefore, immediately find any greater result than a difference in the incidence of the disease upon the several ages in periods before and after the change came into operation. In other words, we should expect a greater relative incidence of mortality upon children at the school-age period of life occurring after the larger aggregation of children in schools than before that event happened; but it might further be expected that this would be especially noticeable when for some reason the disease was showing a greater tendency to spread from person to person.

I have somewhat recently shown how far the statistics which are available support a hypothesis that children at the school-age period of life have in later years suffered proportionately more from diphtheria mortality than in earlier years. The story shortly told is this: The mean annual mortality from diphtheria in London in 1871–80 was less than in 1861–70, but the fall in mortality in 1871–80 was not equally shared by persons of the several ages. For some reason children from three to ten years of age shared less in this fall than children under three years of age or persons over ten years of age, suggesting that some new factor had come into existence which tended to maintain diphtheria prevalence among children from three to ten years of age. When the mean mortality from this disease in 1881–90 is compared with that of 1871–80, it is found that the mortality at all ages in 1881–90 has increased upon that in the former period, and further that this increase is greater for children at the ages of from three to ten years than for those under three or for persons above ten years of age. Again, if we compare the diphtheria mortality in London during 1891–93 with that of former periods we find this especial incidence of the disease upon children from three to ten years of age, as compared with persons at other ages, still more plainly marked, the years 1891–93 being years of exceptional diphtheria prevalence. Thus, we note that the mean annual rate of mortality at all ages was in 1891–93 increased 313 per cent. above the mean annual rate of mortality in 1855–60; but while the increase of children under three years of age was 311 per cent., and above ten years of age 81 per cent., that of children from three to ten years of age was as much as 457 per cent. Again, if we compare the periods 1891–93 and 1861–70 in the same manner, we find that the increase of the rate at all ages in 1891–93 was 196 per cent. upon the rate of 1861–70, that of children under three years of age was 173 per cent., that over ten years of age was 53 per cent., while at from three to ten years of age the increase was 309 per cent. There is, therefore, at the present time an increased tendency of children at from three to ten years of age to die from diphtheria than in earlier times, and this increased tendency was first manifested somewhere between the two periods 1861–70 and 1871–80. A closer examination of the age incidence of mortality from this disease in each of the years 1861–80 is therefore necessary, and such examination points to the year 1871 as that in which this increased incidence first became conspicuous. It is interesting to note in this connexion that the Elementary Education Act first became operative in that year. The question necessarily deserves consideration whether alteration in nomenclature may be responsible for the behaviour of the figures which I have indicated, but it is found that the inclusion of croup with diphtheria teaches the same lesson.

How far this coincidence of date between the legislative Act of 1870 and the change in the age incidence of diphtheria mortality is more than mere coincidence it is impossible on these data to assert, but whatever is the cause of this change it is not related to London only, for the figures of England and Wales betoken the same change; and, further, if we group the more populous districts together and the less populous districts together we find the mortality statistics of both groups indicating the same change. Dr. Longstaff has shown that diphtheria in the three periods 1855–60, 1861–70, and 1871–80 has not shown the same tendency to cause mortality in densely inhabited, as in sparsely inhabited districts, but that the much greater tendency of this disease to cause mortality in sparsely inhabited districts (which is shown by the figures of 1855–60) is less manifested in the period 1861–70, and very much less in the period 1871–80. The incidence has, indeed, been shifted from the less populous to the more populous districts. Is this result due to the same cause as that which has led to increased incidence upon the ages from three to ten years? Are we to assume that the difference between the amount of aggregation in schools of children living in the more densely inhabited districts in 1871–80 as compared with 1855–60 and 1861–70 has been greater than the difference between the amount of aggregation of children in rural districts in 1871–80 compared with 1855–60 and 1861–70, or, in other words, has the Act of 1870 made a greater difference in the conditions of densely inhabited than in sparsely inhabited districts? It has been suggested to me that this may have occurred, because under the conditions of village life the more direct contact between the clergy and the parishioners would before 1870 have secured for the latter a larger use of schools than was possible in the case of persons living in large towns. If this be the case, a compulsory law would probably make more change in the towns than in the country districts. I do not think the grounds exist for more than speculation, but I may add that if such hypothesis be correct, we ought to find but little, if any, further shifting of the incidence of the disease in these communities between 1871–80 and 1881–90, when the facts as to the latter decennium are known. The great change would have occurred between 1861–70 and 1871–80, and probably not be repeated.

We might, however, expect the influence of schools, so far as they may give opportunity for the communication of infectious disease from person to person, to be manifested in another way. It might be expected that any interruption in school life would be indicated by a diminution in the amount of prevalence. The most complete examination into this subject with which I am acquainted is that of Dr. Arthur Whitelegge, who, by recording the date of onset of cases of scarlet fever at Nottingham, found that fewer cases occurred on Wednesday, a day corresponding with diminished infection on Sunday. Even when the dates of onset are unknown, and only the dates of notification are available for our information, we might hope to obtain some evidence of the influence of longer holidays when the figures are sufficiently large to give trustworthy indications. I am fortunate in having for my purpose the record of notifications of infectious diseases for the vast population of London, and I am thus able to exhibit curves after the method of Buchan and Mitchell for each of the diseases scarlet fever and diphtheria for the years 1892 and 1893, showing the excess and defect of the cases notified in each week in relation to the mean of the weekly numbers. Interest, of course, centres in the question whether at the period of the summer holiday there is any evidence of diminished prevalence, and the curves to which I refer leave no doubt in my mind that this has definitely occurred.

At the risk of being tedious I will state the facts separately for each disease. In 1892 scarlet fever was increasing in London in the twenty-seventh, twenty-eighth, and twenty-ninth weeks; in the thirtieth week it was somewhat diminished. In the thirty-first week there was a marked fall, which was maintained in the thirty-second week; there was a slight rise in the thirty-third week and a fall again in the thirty-fourth week. In the thirty-fifth week a considerable rise occurred, after which the disease increased rapidly in successive weeks. The depression in the curve is, therefore, shown in the thirtieth week, and conspicuously marked in the thirty-first, thirty-second, thirty-third, and thirty-fourth weeks. In this year, 1892, the London School Board schools closed at noon on Thursday, July 21st—i.e., near the end of the twenty-ninth week. If we regard this closure as diminishing the opportunity for the spread of scarlet fever we should expect the result to show itself, perhaps, by slightly diminished prevalence in the next week, the thirtieth, and to

be more conspicuous in the four subsequent weeks, allowing two or three days for the incubation of the disease, two or three days for the disease to become recognised, and perhaps a little delay in the notification. We should, moreover, expect an increase of prevalence the week after the schools reopened, and this is what actually occurred. Again, in 1893 scarlet fever fell in the thirty-second, thirty-third, thirty-fourth, and thirty fifth weeks, and increased very considerably in the thirty-sixth. The holidays began on Friday, July 28th—i.e., near the end of the thirtieth week. The thirty-first week showed a very slight increase of prevalence, and a very marked depression occurred in the thirty second, thirty-third, thirty-fourth, and thirty-fifth weeks, a rapid rise occurring in the thirty-sixth week—that is, the week after that on which the schools reopened. It is noteworthy that the schools in 1893 closed and reopened a week later than in 1892, and the depressions and rise follow in each year in proper sequence. I have prepared a similar curve for the year 1894, and I find the same August depression, but inasmuch as the year is as yet incomplete, I prefer not to discuss it at the present time.

I have, however, another means of examining the curves of these years. The closing of schools ought to be attended by some difference in the age incidence of the disease if it is associated with diminution in the amount of disease caught at school. If the cases of scarlet fever notified are grouped into three age periods—under three years of age, above three years of age and under thirteen years of age, and above thirteen years of age—the children from three to thirteen years of age ought to have enjoyed a larger immunity during the holidays than those at the other age periods. The London figures for 1892 show that this has been the case. It will be more convenient if I group the several weeks to which I must refer into periods embracing four weeks before the depression in the curve is strongly manifested, the four weeks during which this depression is thus manifested, and the four subsequent weeks. In these three successive months the number of cases under three years of age was 257, 322, and 321; the number of cases above thirteen years of age was 428 460 and 539. In these two age periods, therefore, the numbers have increased in each period, but those from three to thirteen years of age have conspicuously fallen in the second period; they were 1760, 1605, and then they rose to 2441. The depression in the curve is therefore entirely due to diminished prevalence of scarlet fever at the school ages. If we examine them week by week we find that the fall coincides in point of time with the closing, and the subsequent rise coincides in point of time with the re-opening of the schools, due allowance being made for the incubation period and delay in notification. In 1893 the results are very much the same. In the several four weeks antecedent to, during, and subsequent to the depression, the numbers under three years of age were 389, 386, and 422, the numbers over thirteen years of age were 805 667, and 843, while the numbers from three to thirteen years of age were 2653, 1990, and 3269. There was, therefore, some fall in the number of cases at each age period; but whereas the infant fall was 1 per cent and the fall of persons over thirteen years was 17 per cent., children at the school age fell 25 per cent.

I have already referred to diphtheria, and have pointed out a change in the age incidence of mortality from this disease which is suggestive of increased opportunity for the dissemination of diphtheria by means of schools. It is right, therefore, that the summer notification figures should be examined in the same way as in the case of scarlet fever. In 1892 it cannot be said there is an August depression, the numbers in the three periods of four weeks being at all ages 639 632, and 783. At the several ages the numbers were: under three years of age, 82 98, and 91; thirteen years of age and upwards, 245, 221, and 296; and at the school age 312, 303, and 396. In this year, therefore, the figures teach no definite lesson. It is, however, deserving of notice that the males and females behave very differently, and whereas the number of males at school age shows in the holiday time a fall of 16 per cent., against a fall of less than 4 per cent. among those over thirteen years of age, this special decrease of male children at school age is more than compensated by a marked increase among the girls at school age in the holiday month. The year 1892 is therefore unsatisfactory. In the year 1893 there is a marked August holiday depression corresponding with the scarlet fever depression of that year. In the four week periods the numbers of cases were as follows: under three years of age, 158, 170, and 181; above thirteen years of age, 430, 433, and 557; while the numbers at school age were 556, 413, and 737. In this year, therefore, the whole of the holiday depression is due to diminished prevalence at the school-age period of life. I should be wanting in the caution that should characterise the student of epidemiology if I were to regard these figures as conclusive. I may claim for them that they are suggestive, that they harmonise well with the more exact observations of Dr. Whitelegge as to the behaviour of scarlet fever in Nottingham, to which I have referred, and that they certainly contribute to the reasons which already exist for further inquiry into the influence of schools in connexion with the prevalence of epidemic disease. They are, perhaps, especially deserving of consideration in this respect, because the August holiday occurs at a time when increase of prevalence of these diseases may be expected, and the fact that at such time there is an actual diminution of disease is the more striking.

It is of course possible that other influences, such as the migration of population from London, may have contributed to the August depression in our curves. To meet the requirements of the case we must assume that this migration was of very notable extent, and that children at school age migrated very much more largely than persons at other ages. I do not myself think that this explanation would suffice. Dr. Newsholme has, however, been good enough to supply me with the notification figures for the two years 1892 and 1893 relating to Brighton. I have been glad to have them, because Brighton receives numerous visitors in the summer. Whether the exodus of children in boarding schools is in the holiday time compensated by the influx of children who come as visitors cannot be stated, but Dr. Newsholme tells me that the number of cases of scarlet fever and diphtheria in boarding schools is so very trifling that they may be disregarded. The number of cases occurring in Brighton is very small, but the results of each of the two years may be stated. The year 1892 is wanting in the scarlet fever depression of August; in fact, there was in that year at all ages a slight increase in August. Of ages from three to thirteen there was a trifling fall in August, but the following four weeks the fall was more marked. Scarlet fever was therefore declining, and the numbers teach nothing. Of diphtheria the number of cases was too few to indicate anything except that there was a considerable rise among the children from three to thirteen years of age in the week after the holidays. In 1893, both in the case of scarlet fever and diphtheria, the results are very different. Scarlet fever was in the holiday weeks diminished by one-half, and more than doubled again in the post-holiday week, children from three to thirteen years of age being the chief gainers by the holiday. Diphtheria at all ages also fell in the holiday weeks, and rose again considerably in the following month. The whole of the fall was due to diminution of disease among children at school age. Again, I have gone further afield, and I am indebted to Professor Linroth of Stockholm for supplying me with the notification figures of scarlet fever for that city in 1893 and 1894. I am not able to distinguish between persons of different ages, but I can give the all-age figures; they have an interest, because the holidays begin in the middle of June and extend to about the third week in August. The holiday depression in 1893 is not specially conspicuous. The average number of cases per week in four weeks before the holidays, in the nine weeks of the holidays, and in the four subsequent weeks were respectively 36·2 24·8 and 25. In 1894 the weekly average in five weeks before the holidays, eight weeks of the holidays, and five weeks after, respectively, were, however, 23·8, 13·1, and 41·6. This increase after the holidays, Professor Linroth writes to me, he has often observed. If we were to assume that in the particular years to which I have referred scarlet fever and diphtheria were disseminated in schools, it does not necessarily follow that a similar behaviour of these diseases would be conspicuous in every year. It would be in agreement with the facts observed as to particular schools to find that at one time these maladies were spreading in schools and at another time that they were not doing so. Indeed, London diphtheria figures for 1892 themselves suggest that there was a difference in that year between the boys and girls. We may, however, learn something of the constancy of the August depression, whatever it may be due to, by reference to the death and case curves shown in the annual summary of the Registrar-General for 1890, the case curves being based on the cases admitted into

the fever hospitals of London during sixteen years. We notice in the August deaths a slight interruption to the rise of the curve in that month, and at this time the case curve shows a marked depression. I have as yet said nothing of the influence of holidays at other times of the year, for the reason that my work is incomplete; but I may add that I have already suggested that the same results will be found in connexion with them. On the other hand, Körösi, when dealing with the statistics in the manner I have described, states that the supposition that scarlet fever is a school disease is not borne out by the facts; "on the contrary, we repeatedly find the greatest number of cases occurring during the holidays"—a fact "which is five times the importance seeing that this period is but a fifth part of the school time."

Before leaving this subject I desire briefly to refer to Körösi's conclusions as to the influence of schools on the prevalence of measles. He points out that in eleven years there occurred nine times, shortly after the beginning of the school year, either an epidemic or a marked rise in the number of cases, and again, at the close of the school year, measles has either greatly decreased or has altogether disappeared. At the same time he notes that the two coincidences—viz., that between attendance at school and epidemics of measles and that between school holidays and decline of measles—have not the same importance, because the school year lasts from nine and a half to ten months and the holidays but from two to two months and a half. Since the school time is from four to five times as long as the holiday time, one single holiday epidemic is sufficient to counterbalance from four to five school year epidemics—that is, to weaken the argument that the school time and epidemics are associated as cause and effect. He groups the numbers of attacks into weeks of school attendance and weeks of holidays, and shows a special incidence of the disease upon the former. But he is able to afford still further proof of considerable value. The summer school holiday until the school year 1876–77 was different from that of subsequent years, and he is thus able to show between these periods a shifting of the month of minimum mortality. Again, in two years of the latter period—1886 and 1892—the reopening of the schools after the summer holiday was postponed for a month on account of fear of cholera, and in these years the winter prevalence was correspondingly delayed. The difference of the date of the London scarlet fever depression in 1892 and 1893, which I have already pointed out, and the fact of postponement of the prevalence of measles in Budapest on occasions when the reopening of schools has been delayed, suggest that we may be able to obtain further evidence of the influence of schools on scarlet fever and diphtheria if we learn for other towns than London whether, in years in which the August depression occurs, this in point of time coincides with cessation and recommencement of school operations, for I believe the times of holidays are not identical in every English community. Probably the depression will not always be found. If, as seems probable, it is due to interruption of school operations, it would only be found when in the weeks preceding the holidays disease was spreading through the schools. This might occur in some years and again not in others.

I have already referred to other circumstances than social changes which affect the behaviour of the diseases under consideration. The condition of which I now wish to make mention is that of change in type of the disease. This subject has been so well discussed by Dr. Arthur Whitelegge in his Milroy Lectures for the year 1893[1] that I do not hesitate to refer freely to his work. He shows that the prevalences of scarlet fever occur rhythmically. There is, in fact, every four, five, or six years—sometimes more, sometimes less—a greater prevalence of scarlet fever than in the interval. These he calls minor waves. Beyond this he recognises major waves, extending over a number of years, and consisting of many minor waves. Midway between the greater prevalences which constitute the summits of the major wave the minor waves are longer and less distinct, but as they approach the next great prevalence indicated by the summit of the major wave they become shorter and more clearly defined. With this he observes corresponding changes in the fatality (case mortality) of the disease, an increased fatality in the maxima of the minor waves, and an especially increased fatality at the maxima of the major waves. We have, therefore, waves which we may call seasonal, waves extending over a few years, and waves extending over many years. But there is an important difference between the seasonal and other curves, for while Dr. Whitelegge finds an increased fatality in the years of the maxima of his minor and major waves, he failed to find evidence of this in the months of seasonal prevalence of scarlet fever. This difference between the seasonal and other waves demands a closer investigation. I have at the present time the monthly fatality in London for three years and for three diseases—viz., scarlet fever, diphtheria, and enteric fever. The figures are based on the cases notified each month, and the fatality is calculated on the deaths of a month beginning one week later. It cannot be a precise statement, but the method I have adopted reduces, I think, the error it contains as much as possible. Now, if we compare the fatality with the seasonal prevalence curves, we at once perceive that the seasons of high fatality of scarlet fever and diphtheria are not the same as the seasons of prevalence. Further, if we follow the fatality of these diseases month by month, we find that there is a general tendency for these diseases to have their highest fatality at the beginning of the year, and then for the fatality to decline until the month of August or September is reached, and then gradually to rise again, attaining a maximum in December. There is, indeed, an indication, and a strong indication, of seasonal fatality. The records of further years are wanting for more exact definition of the curve of fatality, but the statistics of the three years enable us to see roughly what it will be. Diphtheria is more uncertain in this respect than scarlet fever, but this may be due to the fact that with diphtheria we are dealing with fewer cases; so, again, enteric fever is still more uncertain, and perhaps for the same reason. We must be, however, I think, quite prepared to see enteric fever behaving differently from scarlet fever. Dr. Ballard has taught us that the fatality of diarrhœa increases with its prevalence, and in view of the saprophytic relations of enteric fever we may therefore find some disposition in the fatality of enteric fever to be governed by the same conditions as those which govern the fatality of diarrhœa. This is a point upon which the material I possess gives no indications.

We may now consider some of the circumstances that may influence the fatality of disease, irrespectively of fatalities due to age and sex. It has been frequently observed that disease disseminated by milk and by water is attended by low fatality. Dr. Whitelegge's explanation that this may be due to the infection of persons of high resisting power is probably correct, for the contagium directly introduced into the body with food may perhaps cause a definite train of symptoms, though of mild degree, in those who would be able entirely to withstand contagium disseminated in other ways. Indeed, in outbreaks due to milk or water it is often difficult to draw the line between persons in disease and persons in health, so slight do the symptoms often appear. Thus, we find in households infected with enteric fever by a milk-supply severe and even fatal cases associated with others of less degree, even with persons who had no other indication of the disease than a diarrhœa lasting but a day or two. There is, however, reason for thinking that milk infection is, as a rule, less malignant in its results; certainly some of the milk outbreaks which have been investigated have been definitely characterised by the mildness of their symptoms, and I do not think the question whether some of the variation in the fatality of scarlet fever and diphtheria may not be due to varying proportions of that due to milk can be wholly set aside. It is not to be assumed that disease due to milk can always be demonstrated to be due to this cause. I have myself had experience of a severe outbreak of enteric fever in London in one year followed by a severe outbreak of the same disease the following year in a country town, and in both cases obviously due to the milk received from the same farm. But between the two outbreaks, in the winter months, the distribution of milk from this farm was attended by the occurrence of a very limited number of cases of the disease, so few, in fact, that but for the more serious outbreaks there would not be the least ground for associating them with the milk supply. More recently I have had experience of three cases of enteric fever occurring in a school of 150 boys, one or two cases of the same disease being subsequently found among a number of other persons receiving their milk from the same source. I can, therefore, well believe in cases due to milk infection being of far more frequent occurrence than can be demonstrated, and affording, especially under the circumstances of

[1] THE LANCET, Feb. 25th, and March 4th, 11th, and 18th, 1893.

town life, no evidence of the source of the infection. Beyond this we may recognise what Dr. Thorne Thorne has described as a "progressive development of the property of infectiveness." He has taught us how the beginnings of diphtheria are often indicated by prevalence of apparently simple sore-throat, and later how the disease is manifested by symptoms of a far more malignant malady.

From these circumstances alone we might expect variation in fatality if we assume that milk scarlet fever and milk diphtheria are more frequent at one season of the year, and that their contagia become more malignant after passing through the bodies of successive human beings. If, in fact, as suggested by Dr. Gresswell, the cow may play the part of an intermediate host, we may have in some degree to reckon with the varying conditions of the life of that animal. At the present time we cannot draw conclusions from the facts which have been observed. We may be rather disposed to think of seasonal fatality as related to those changes traced by Dr. Whitelegge over series of years, occurring rhythmically like those he has described and due to causes of which at present we have no knowledge. We can now only look upon the variations in the fatality of scarlet fever and diphtheria as "seasonal," leaving the future to determine what we must include under that term. For the explanation of the phenomena which present themselves to us we must find a condition or conditions which cause a fatality having its minimum in August or September, increasing in succeeding months to the end of the year, or into the following January, and then gradually declining month by month until the minimum is again reached. It may include meteorological conditions causing changes in the contagium after leaving one human body and before entering the next, or differences in the ability of the human body at the several seasons of the year to serve as a cultivating medium, and it may include differences in the original source of the contagium which is being disseminated. With such differences we shall have to take cognisance of those of prevalence, and probably also of symptoms; for Dr. Gresswell, in his thoughtful analyses of cases of scarlet fever in the South-Western Hospital, has described differences in the pulse-rate, in the gravity of the disease as exhibited by the condition of the tongue, and in the liability to suffer from albuminuria, determined apparently by the months in which the patients received their infection.

In attempting to sum up my somewhat discursive remarks I am aware that much of the material at my disposal is only suggestive. I have referred to social conditions, and especially to that which we familiarly know as school influence, as possibly playing at times a larger part in determining prevalence than that with which we have hitherto credited it. Of the conditions determining prevalence of epidemic disease we cannot set aside those which are meteorological, but the exact relations between these prevalences and conditions are still very obscure. Generally, if long periods of time be compared, there is association of prevalence and increased fatality; but if these be studied by the facts of each of the last few years there is reason for thinking that the months of prevalence and high fatality are not the same. There is, indeed, as definite a seasonal fatality as there is a seasonal prevalence, but the two do not correspond in point of time. We are still in ignorance of the conditions which determine these variations in prevalence and fatality, but among them we may have to include differences in the source of the contagium.

Gentlemen, I am well aware that if for the purpose of giving illustration of the study of epidemiology I had desired to show the triumphs which have been attained I might have selected subject matter very different from that which I have discussed. Such, however, was not my intention. I preferred to utilise material which was nearer to my hand, and which demonstrated better the difficulties which attend us in our work. But notwithstanding these difficulties I am satisfied that we are—by adoption of design in our inquiries—gradually laying a sure foundation, that every contribution to our stock of knowledge, however small, helps to pave the way to a more clear understanding of the behaviour of epidemic disease. We work under more favourable conditions than the early members of the society; we have the knowledge they themselves have left us, we have the aid of the better records of notification of infectious disease, and we have the aid of a laboratory which was unknown in their time. To the last I have made no reference in my address, but its value and importance are recognised by us in the fact that at our next meeting this branch of our subject will be dealt with by Dr. Klein.

A Lecture
ON
THE DIAGNOSIS AND ANTITOXIC SERUM TREATMENT OF DIPHTHERIA.

Delivered at the Examination Hall of the Conjoint Board of the Royal Colleges of Physicians (Lond.) and of Surgeons (Eng.), on Dec. 7th, 1894,

BY GERMAN SIMS WOODHEAD, M.D., F.R.C.P. EDIN., F.R.S.E.,

DIRECTOR OF THE RESEARCH LABORATORY OF THE CONJOINT BOARD OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON, AND THE ROYAL COLLEGE OF SURGEONS, ENGLAND.

MR. CHAIRMAN AND GENTLEMEN,—When I was asked to give a lecture on the diagnosis and antitoxic serum treatment of diphtheria I felt that I had thus afforded to me an opportunity not only of discussing a most important question, but of combating several very mistaken ideas and of putting the subjects of diagnosis and treatment in a somewhat more accurate light than that in which they are at present viewed except by members of the medical profession. I shall, of course, in the short time at my disposal be unable to enter at all fully into many very important questions; I must, indeed, confine myself almost entirely to a concise and sharply defined statement of the results of recent observations, hiding nothing, and as far as possible putting them forward in their true proportions.

MORTALITY FROM DIPHTHERIA.

It may be pointed out from statistics that no fewer than 13,694 cases were notified in London during the year 1893. Amongst these cases there was a mortality of 3195, or 23·3 per cent. (see THE LANCET corrected statistics). Now, taking the figures presented by Dr. Seaton at the International Congress of Hygiene and Demography at Budapest in August last, it is found that the statistics for England and Wales and London come out as follows:—

Mean Annual Death-rates from Diphtheria per 1,000,000 Living in England and Wales and in London in Four Periods of Three Years each.

—	1881-3.	1884-6.	1887-9.	1890-2.
England and Wales	144	166	173	192
London	213	227	315	377

Mortality from Diphtheria in London.

1888.
1st quarter, 307
2nd ,, 246
3rd ,, 271
4th ,, 444——Total for 1888, 1268.

1889.
1st quarter, 348
2nd ,, 309
3rd ,, 456
4th ,, 439——Total for 1889, 1552.

1890.
1st quarter, 334
2nd ,, 272
3rd ,, 298
4th ,, 483——Total for 1890, 1387.

1891.
1st quarter, 341
2nd ,, 302
3rd ,, 328
4th ,, 358——Total for 1891, 1329.

1892.
1st quarter, 318
2nd ,, 432
3rd ,, 478
4th ,, 628——Total for 1892, 1856.

In another series of most carefully prepared and tabulated statistics, those of the Metropolitan Asylums Board's

hospitals which receive diphtheria patients (Table I.), we find that during the year 1893 the case mortality amongst cases of diphtheria admitted to the wards of these hospitals was a little over 30 per cent.—under conditions which we may say are practically unknown in France and in most parts of Germany and Austria. This is sufficiently startling, but if we examine earlier statistics we find that during the years 1888–90 the case mortality, as indicated by the admissions and deaths, was much higher. On reference to Table I. it will be seen that since the year 1888 the case death-rate has fallen from 46·4 to 30·3 per cent., although the number of cases of diphtheria treated has risen enormously. The mortality from diphtheria in London during the same period has also risen very considerably. The case mortality at different ages is brought out on reference to Table II.

TABLE I.—*Metropolitan Asylums Board: Admissions and Case Mortality, Diphtheria, 1888–93.*

Year.	No. of admissions.	No. of deaths.	Percentage of case mortality.
1888	99	46	46·4
1889	722	275	38·0
1890	942	316	33·5
1891	1312	397	30·2
1892	2009	583	29·0
1893	2348	865	30·3

NOTE.—Diphtheria cases have only been admitted into the hospitals since Oct. 23rd, 1888.

TABLE II.—*Showing the Mortality at Various Ages from Diphtheria admitted into the Metropolitan Asylums Board's Hospitals in the years 1888–93.*

Ages.	Cases admitted.	Died.	Mortality per cent.
Under 1	146	102	69·9
1 to 2	447	291	65·1
2 to 3	639	388	60·7
3 to 4	826	416	50·4
4 to 5	913	400	43·8
Totals under 5 ...	2971	1597	53·8
5 to 10	2462	705	28·6
10 to 15	885	93	10·5
15 to 20	588	23	3·9
20 to 25	428	22	5·2
25 to 30	289	13	4·8
30 to 35	137	5	3·6
35 to 40	87	5	5·7
40 to 45	50	6	
45 to 50	27	4	
50 to 55	13	4	16·8
55 to 60	11	1	
And upwards	6	3	
Totals	7932	2491	31·3

Comparing these results of treatment in our hospitals with those obtained in the Paris and Berlin hospitals (see Table III.), the records of which are published, it is at once seen how much more favourable are the results obtained in the hospitals of the Metropolitan Asylums Board. It will be noted, however, that the figures applying to the earlier years represented a case mortality almost as high as obtained in the French and German hospitals immediately before the antitoxic serum treatment was introduced. The mortality in hospitals must always be greater than in private practice from the fact that so many of the cases are so serious; some of the patients, indeed, are actually moribund when admitted. Tracheotomy is performed as a last resort and, as we know, in only a small percentage of cases with the desired results.

ETIOLOGY OF THE DISEASE.

Those engaged in tracing the actual and ultimate causes of infective diseases have for long been occupied in the study of certain micro-organisms which appeared to have an etiological relation to diphtheria. In Germany Oertel, who studied diphtheria most carefully, for long held that the active etiological agent was a streptococcus. He was followed by several observers in Germany and by Formad in America, although Klebs had already described a short bacillus as occurring in considerable numbers on the surface of the false membrane, an organism which he described with considerable minuteness as regards its appearance and manner of staining. Then Löffler, by a series of most careful experiments, was able to prove that this bacillus (now known as the Klebs-Löffler bacillus) had a definite causal relation to the disease. He obtained pure cultures of this organism outside the body, inoculated these cultures into animals, thus setting up characteristic lesions in which the organism could afterwards be found, from which again pure cultures could be made. He was able to produce false membranes on mucous surfaces and also to set up the toxic symptoms so characteristic of diphtheria. He came to the conclusion that the organisms were confined to the local lesion in the nares and throat; that here, however, they formed their poisons, which were then diffused throughout the body. Klein in this country, working along similar lines, was able to correct and confirm Klebs' and Löffler's descriptions on several very important points, but all three observers agreed that the micro-organism found in the lesions had perfectly definite characters. In the false membrane it usually occurs as small rods about 3–6 μ in length, slightly shorter than the tubercle bacillus, but from one and a half times to twice as thick as that organism. It is straight or slightly curved and usually somewhat enlarged and rounded at the ends, which are more deeply stained than the central portion. It occurs singly or in groups, sometimes forming a kind of interlacing reticulum when in sufficient numbers, or grouped irregular masses of considerable size. In a case of true diphtheria these bacilli are almost invariably found on the surface of the false membrane, whilst in other cases they are situated somewhat more deeply, but are seldom, if ever, found in the mucosa—that is, the true mucous membrane—from which they are separated, according to Löffler, Roux and Yersin, and Ruffer, by a layer of fibrinous lymph, in which are found numerous leucocytes. In order to stain these organisms a small portion of the fibrinous membrane may be finely teased out on a slide, and on this a few drops of Roux's solution, which consists of a few drops of watery solution of violet dahlia and a sufficient quantity of a watery solution of methyl-green, added to distilled water to form a clear blue fluid. This poured over the teased-out membrane—of which, of course, only very minute fragments can be examined—stains the organisms most distinctly, the diphtheria bacilli much more rapidly than the other organisms usually present in this condition. Löffler's methylene blue may be used in the same way. Where, however, it is wished to make more certain of the diagnosis, dried cover-glass preparations are made and Gram's method of staining

TABLE III.—*Serum Treatment of Diphtheria.*

—	—	Number of cases.	Number of deaths.	Percentage of mortality.	Percentage of previous mortality.
Roux, Martin and Chaillou	Paris	448	109	24·5	51·7‡
Ehrlich, Kossel and Wassermann	Berlin	220	52	23·6	34·7§
*Canon	,, ...	15	3	20·0	25·0
*Schubert	,, ...	34	6	18·0	—
*Voswinkel	,, ...	60	19	33·3	46·5
Ehrlich	,, ...	89	12	12·3	—
†Kossel	,, ...	233	54	23·0	—
*Körte	,, ...	121	40	33·1	53·8
Bokai	Budapest	35	5	14·2	53·8
Heubner...	—	96	37	38·5	62·5
Katz...	Berlin	128	17	13·2	38·9‖
Aronson...	,, ...	285	31	12·1	32·5-41·7
Ranke and Oertel	—	19	4	21·0	—
THE LANCET... ...	Austrian Riviera .	70	7	10·0	—
Weibgen...	Berlin	65	18	28·0	40·0
Muchleck	Philadelphia... ...	2	0	—	Two not treated died
Dr. White	Willard Parker Hospital, New York...	32	8	25·0	42·7
Cases reported in THE LANCET and *British Medical Journal*...		79	9	11·4	—

* Canon, Schubert, and Voswinkel's statistics, and probably also the bulk of Körte's, are really included in the Ehrlich, Kossel, and Wassermann's table.

† Kossel's statistics appear to be simply an extension of those given by Ehrlich, Kossel, and Wassermann.

‡ Mortality in Trousseau Hospital at same period without use of serum 63·2 per cent.

§ Based on previous seven years' statistics.

‖ Based on three years' statistics. Last year's mortality was 41·7 per cent.

is used. In this case the bacilli retain the stain after the specimens have been treated with the iodine solution, the other organisms yielding up the stain comparatively readily. On careful examination of these bacilli it will be found that they do not stain equally throughout; the bodies of the bacilli appear to be segmented, the stained material accumulating in small round nodules, whilst between these deeply stained points there is a kind of membrane which is only delicately stained.[1] These organisms are demonstrable in almost every early case of diphtheria, but it must be borne in mind that they are often associated with numerous streptococci, so that unless careful search be made they may be overlooked, especially in specimens not stained by Gram's method.

But what is diphtheria? From the most recent clinical and pathological observations we gather that it is an infectious disease primarily of local occurrence upon a mucous or other free surface, due to the presence and action of a specific micro-organism, as a result of which there is usually the local formation of a false membrane. Associated with this there is great constitutional depression, due to the distribution of the locally formed toxines through the lymphatic and vascular channels; the disease is often followed by peripheral paralysis and often proves fatal.

The false membrane, at one time so constantly associated with diphtheria, is by Dr. Goodall and others assigned a position of somewhat secondary importance; whilst the presence of the diphtheritic micro-organism and the great constitutional depression and the primary and secondary toxic symptoms are specially insisted upon. Hamilton considers that all the following three conditions of the throat and larynx should be considered as of diphtheritic nature. The first form is angina lacunaris sive follicularis, a disease in which the surface of the tonsils and fauces "is inflamed and is stippled with curdy-white or ash-grey points or patches; in which there is an absence of anything like a deep slough; which usually disappears under appropriate treatment, and which may simultaneously affect and prove fatal to several members of a household." It is a contagious disease which is very readily amenable to treatment, though some cases undoubtedly die. It has been suggested, however, that this is not a true diphtheria, to begin with, but that the affected parts in this condition serve as a good cultivating ground for the diphtheria bacillus, that in this condition the patient is particularly susceptible, and that the diphtheria is really a secondary and superadded disease. Hamilton says, indeed: "Many instances of diphtheria, however, commence as angina lacunaris." Secondly, he describes a disease in which "the larynx and trachea are specially involved, which may be associated with great constitutional disturbance, which locally is characterised by hyperæmia and swelling of the mucous membrane, with in most cases the presence of a false membrane, and which in a large proportion of instances is highly contagious." This is the so-called typical diphtheria case. The third form, malignant sore-throat, is described as "a distinctly ulcerative or gangrenous disease having its chief seat on the tonsils, fauces, and nares; which, as a rule, is not accompanied by a false membrane; whose course is complicated by toxic symptoms; which is eminently contagious; and which proves fatal, not usually by obstructing the respiratory *viæ*, but by its poisonous effects upon the system." In this condition the organs usually show evidence of a toxic process and the walls of the bloodvessels appear to be specially affected, as minute hæmorrhages are often met with near the local lesion and also in the lungs and on the serous surfaces. The features common to these three forms of disease, then, are the presence of the specific diphtheria bacilli in the local lesion and the more or less marked constitutional disturbance manifested in different ways, but always pointing to a distinct toxic action of some rapidly diffusible and widely diffused poisonous substance. Löffler pointed out that the diphtheria bacillus did not make its way into the tissues and fluids of the body, but that it appeared to form most powerful toxic substances apparently from the fibrinous effusion, and that these toxic products, rapidly distributed to different parts of the body, set up the constitutional disturbance so characteristic of the disease. This toxic substance was afterwards studied more carefully by Roux and Yersin, who came to the conclusion that they were most powerful poisonous substances, probably of the nature of enzymes, which in exceedingly minute doses were capable of setting up profound toxic processes. Sidney Martin, who worked out the subject exceedingly carefully and thoroughly, agreed generally with previous observers, and obtained still more accurate results, in so far as he was able to separate from the spleen of diphtheritic patients two substances, one apparently of the nature of an organic acid and the other of a poisonous albumose; whilst from the false membranes he obtained a much more highly toxic substance corresponding to Roux and Yersin's enzyme. He concluded that this enzyme, absorbed into the body, acts upon the proteids of the spleen and gives rise to the less poisonous, but still very active, organic acid and toxalbumoses. All these substances appear to act specially on the peripheral nerves and upon muscles, setting up in these structures what he describes as segmental neuritis in the one and fatty degeneration in the other.[2] The organism present in such large numbers on the surface of the membrane in undoubted cases of diphtheria has been utilised by Löffler, Roux and Yersin, and others in the diagnosis of the disease, and since the method of diagnosis by microscope and cultivation was introduced those who have used it have come to rely upon it, especially in doubtful cases.

BACTERIOLOGICAL DIAGNOSIS.

The microscopic examination we have mentioned, and in many cases a positive diagnosis may be thus made at once. But in all doubtful cases it is necessary to make cultivations, on suitable nutrient media, of the organisms that are found on the surface of those membranes or that may even be present in the fauces and posterior nares. Löffler mixed fragments of the membrane with boiled distilled water and then allowed drops of the emulsion to trickle over the surface of solidified blood serum. He was thus enabled to obtain pure cultures of the bacillus, as he found that it grew much more rapidly than the other organisms present in the mouth. A similar method was utilised by Roux and Yersin, who, with a small flattened platinum needle or spatula, took a "smearing" from the false membrane and made "streak" cultivations on the surface of solidified blood serum, using the same needle without recharging for a number of streaks. The inoculated media in test-tubes, incubated at the body temperature, at the end of about twenty hours or even less show small, rounded, greyish-white points, the centre of each being somewhat more opaque than the periphery. These spread very quickly, forming greyish rounded colonies, and develop with such rapidity that they may attain a considerable size before the other organisms have begun to form colonies visible to the naked eye. Löffler recommends the use of a mixture composed of three parts of blood serum and one part of neutralised broth, to which have been added 1 per cent. of peptone, 0·5 per cent. of common salt, and 1 per cent. of grape sugar. He recommends ordinary blood serum, and then agar-agar jelly, as the most suitable media. On agar plates the colonies in the substance are coarsely granular, dark-brown in colour, and rounded or oval; the superficial colonies are neither so brown in colour nor so dense, and they have an irregularly scalloped border.

Glycerine agar and gelatine may be used as media on which to make secondary cultures, but it will be found that the virulence of the organism is, in successive cultures, rapidly diminished when these media are used; and it has been suggested, in the case of glycerine agar, that the acid developed from the glycerine interferes very greatly, first, with the toxicity of the products of the organism, and, secondly, with the growth of the organism itself. The diagnosis, thus carried a step further, is completed when colonies on microscopic examination are found to have the characteristic appearance, except in those cases, very few in number, in which the so-called pseudo-diphtheria bacilli are present.

During the course of a case of diphtheria these specific bacilli may disappear from the throat in two or three days after the commencement of treatment. In some cases they disappear even before the membrane has gone, but in other cases they may remain in the pharynx and posterior part of the mouth for five or even seven weeks. This fact, first observed by Roux and Yersin, indicated to them that the danger of infection from a diphtheria case extended over a longer period in some cases than in others, and their observation undoubtedly affords the explanation of numerous outbreaks of diphtheria following the return to school of a child whose mucous membranes have not been thoroughly disinfected. The bacteriological examination in this case affords most valuable evidence, on which the physician in charge of the patient may usually act with very great comfort to himself and safety to his patients. This final examination—i.e., that examination

[1] Lantern-slides of photographs of these bacilli (some of them kindly lent by Dr. Klein) illustrated these descriptions.

[2] Illustrated by some of Dr. Martin's photographic lantern-slides.

made before the patient is considered to be free from infective organisms—must assume an enormous importance in localising and preventing outbreaks of diphtheria.

In view of this fact, the Metropolitan Asylums Board has decided that a bacteriological examination of the fauces of patients suffering from diphtheria—both when they come into and are discharged from their hospitals—is advisable, especially as the preliminary steps of the process are readily carried out with very little expenditure of time on the part of the physician and with no discomfort and absolutely no danger to the patient. For this purpose there will be sent out from our laboratory to the various hospitals under the management of the Board, as required, small cases containing—(*a*) a test-tube (plugged with sterilised cotton wadding) in which is a quantity of suitable solidified nutrient medium, carefully sterilised; and (*b*) a second tube, also plugged with cotton wadding, in which is held a small, soft steel rod, roughened at the end, but tipped with a pledget of cotton wadding, the whole being carefully sterilised by dry heat.

When a case of diphtheria is to be examined all that is necessary to be done by the physician in charge is to take these tubes from the box, take out the wire with the pledget of cotton wool, and press it gently but firmly against the membrane in the throat or at the place from which the membrane had disappeared. The serum tube is then opened and the pledget is drawn carefully once or twice from the bottom to the top of the inclined serum surface. The cotton wadding plug is returned, the wire with the pledget is replaced in the empty tube, and the box is packed up and sent at once for investigation to the laboratories. In those cases in which fragments of the membrane can be easily detached it is advisable, with a platinum spatula previously heated and allowed to cool, to remove a fragment, and to place this in the tube along with the iron wire. Such a fragment may be used in case the first inoculation fails to give the necessary results. The serum tube is placed in the incubator and is examined at intervals until growths make their appearance, from eight to twenty hours at the latest. So that the case, even when inoculations are to be made, can be reported upon within twenty-four hours.

In those cases of sore-throat where diphtheria bacilli have been found the death-rate has up to the present been comparatively high, whilst even in mild cases the so-called paralytic lesions, such characteristic sequelæ of diphtheria, are of comparatively frequent occurrence; on the other hand, amongst those cases where *only* streptococci can be recognised and cultivated the case mortality is comparatively low, and paralytic sequelæ have never been observed. Going a step further, it has been observed that cases in which the diphtheria bacillus was present appear to derive benefit from the use of antitoxic serum, especially when other organisms are absent; whilst in those cases in which there is what is called a "mixed" infection, or which are due entirely to the presence of streptococci and staphylococci, the antitoxic serum appears to have little effect. The importance, then, of this bacteriological examination is evident—(*a*) from the fact that it may help in deciding the exact nature of doubtful cases of throat mischief that are sent into hospital, and (*b*) because it will enable a certain number of cases to be sent out or to be placed in other wards, and in this way may diminish the number of cases admitted to the diphtheria wards; whilst, on the other hand, it may prevent a number (and for even a very small number it would be worth while to examine every case) of cases of true but obscure diphtheria being sent out or being placed in non-infectious wards, where they might become centres of infection in the ward, at home, or at school; and (*c*) because it will enable the physician in charge to determine at what period a patient may be allowed to rejoin his family.

The Metropolitan Asylums Board is the first public body to avail itself of this important method of diagnosis in the interests of the patients under their charge and of the districts in which their hospitals are placed, and I am thoroughly convinced that, being able to determine the period at which danger of infection ceases, they will be able to very materially reduce the number of foci from which the disease spreads. By this part of their work alone the saving of life and of money to the ratepayers should be very considerable. The actual mortality per 100,000 should also be materially diminished, although the case mortality may remain unaffected.

THE BASIS OF THE ANTITOXIC SERUM TREATMENT.

Having taken steps to reduce the number of cases and the actual mortality, it has always been the object of those in charge of the health of the community to bring down the case mortality, and with this object it is held by thoughtful people that every legitimate means which gives promise of help, however small, should have a careful trial. And it is for this reason that the antitoxic serum treatment of diphtheria in this country has been advocated and has aroused such universal interest.

It should be understood at the outset that this method of treatment has really nothing in common with either vaccination against small-pox or with the tuberculin treatment of tuberculosis. These two methods of treatment are here brought into apposition, not from any similarity either as regards the nature of the processes or the results obtained by the two methods, but simply because they differ in all essential details from the antitoxin serum treatment.

It is a well-known fact that an attack of scarlet fever—an infective disease—in many cases produces a specific insusceptibility against a further attack of that disease. Pasteur, as a result of his researches on certain of the infective diseases, came to the conclusion that the immunity or insusceptibility so brought about might be due to one of two things—(*a*) the using up of some special materials necessary for the nutrition of the specific micro-organism, or (*b*) the formation of some substance which, accumulating in the blood, acted as a kind of protective agent, preventing the further growth of micro-organisms during convalescence and for some time afterwards. He supposed, in fact, that the micro-organisms were killed by some such protective material as soon as they found their way into the tissues. Having this latter theory in mind and being acquainted with the German and French researches as to the nature of diphtheria, Behring and Kitasato came to the conclusion that any substance so developed in the body in such a disease must act not only as a bactericidal agent but also as a neutralising or antagonising agent of the toxines formed and distributed throughout the body. Then Behring conceived the idea that it might be possible to produce this bactericidal and antitoxic product in one animal and then transfer it to another animal affected with the disease—that is, that he might introduce into the affected animal a quantity of the antitoxic material which could otherwise only be found in the body of this animal after a somewhat prolonged attack of the disease. Still going on the assumption that an animal might be rendered more and more insusceptible to the action of the toxic products of bacteria if the disease were in the first instance modified so that it would not prove fatal, he found that he might obtain this insusceptibility by introducing the bacteria themselves and allowing them to produce the toxines in the body; or he might grow the micro organisms outside the body, modify their toxines by the addition of solutions of iodine dissolved in iodide of potassium, and then introduce these in gradually increasing doses into the tissues or into the circulation of animals. Using the poisons only, he found that he was able to graduate the severity of the reaction obtained, but he also found that he could greatly increase the dose to such an enormous extent that if there were anything in his idea of the formation of antitoxin he should have this substance developed in large quantities in the fluids of the body. Of course, materials contained in the blood serum can only be those that are introduced into it either from without or as the result of the vital activity of the cells of the body, the products of which are thrown into this fluid, and it is maintained, not only by Behring, Ehrlich, and Buchner, on the one hand, but also by Metchnikoff and his followers on the other, that the antitoxic substances—whatever they may be—found in the serum must be the result of the activity of the tissue cells, especially of the connective tissue and blood-cell groups, stimulated or acted upon by these toxines introduced from without. It may be said, indeed, that the tissue cells, when feeling the necessity of protecting themselves against the action of a specific poison, become so modified that they give rise to the formation of a substance which directly antagonises the action of that poison; and this substance, thrown into the blood, remains there for some time, accumulates in greater and greater quantities as larger and larger doses of the poison are thrown in, neutralising the poison, whose power of doing damage to the tissues is thus checked at once. Where micro-organisms are used the matter of dosage is not so easily graduated and the bodies of the bacteria themselves have to be removed by the cells, even though their vitality is

diminished or altogether removed by the altered serum. Here, then, comes the application of a new principle. The primary lesions in diphtheria are perfectly localised, but the effects of the poison are general, so that it was an excellent example on which to test the accuracy of the experiments carried out.

PREPARATION OF ANTITOXIC SERUM.

After various animals had been tried it was suggested by Roux and Nocard that the horse was an admirable animal from which to obtain the antitoxic serum. He has a naturally small susceptibility to the disease; the blood when drawn from the vessels rapidly separates into two portions—a firm clot and a clear, straw-coloured serum; considerable quantities of blood may be readily obtained without in any way injuring the animal, which, if well fed, stands bleeding as well as our forefathers and is as little inconvenienced by it; indeed, he often improves greatly in condition during the period that he is under treatment. It is not here necessary to go through the various stages of the evolution of the method now in use: we may say, however, that first the organisms were placed in the tissues and injected into the veins; then the toxines of the diphtheria bacillus were separated and also injected, firstly into the tissues, secondly into the veins; the animals became gradually acclimatised, as it were, to the presence of enormous doses of most active toxine without being any more inconvenienced than they were at the beginning of the process by comparatively small doses of a diluted toxine. The following is an account of Roux's method of preparing diphtheria toxine with which the animal has to be injected. A culture of a virulent diphtheria bacillus is inoculated into a distinctly alkaline beef broth containing 0·5 per cent. of common salt and 2 per cent. of peptone, contained in a flat-bottomed flask, into which are inserted a couple of tubes, one attached to an inlet tube and the other to an outlet tube, the whole having been sterilised before it is inoculated with the bacillus. After the growth is well started—usually at the end of about twenty-four hours—a current of air is kept passing continuously over the surface of the layer of fluid, which should not be more than about half an inch in depth. The air must be moist in order that the evaporation from the surface of the broth may not go on too rapidly. A fine flocculent deposit forms on the bottom of the vessel. This deposit increases in thickness until the end of about a month; but even after the first ten days a very large amount of toxine is found in this fluid, but the amount of toxine goes on increasing so long as any fresh deposit is thrown down. At the end of a month, however, it is ready for use. It is so active that 0·1 c.c. is quite sufficient to kill in forty-eight hours a guinea-pig weighing about 500 grammes. The bacilli may be killed by the addition of 0·5 per cent. of carbolic acid, and the supernatant fluid, which remains clear as the bodies of the bacilli sink to the bottom, is used for the purpose of injecting the animal in which the antitoxic serum is to be formed, or the fluid may be passed through a Pasteur-Chamberland filter by which the bacilli are kept back, only the fluid containing the toxic material being allowed to pass through the pores of this filter. With the fluid so obtained a strong horse, which is first proved to be free from glanders and from tubercle, is injected. Small doses are used at first, either pure or with the addition of one-third of its volume of Gram's solution, in doses commencing with about 2 c.c. and gradually increased, so as always to set up some local swelling and a distinct rise of temperature. By gradually increasing the dose and injecting at intervals of a few days, according to the time at which the clinical symptoms disappear, the antitoxic activity of the blood is continuously increased, until at the end of three months—though the time, of course, varies in different animals and according to the amount of immunisation employed—the serum is sufficiently potent to be used for the treatment of cases of diphtheria. In order to determine the exact antitoxic power of the blood taken from such an animal Ehrlich has devised a method by which this can be done with the utmost nicety. Of the poison which is known to be lethal to a guinea-pig, say, of 500 grammes, in doses of 0·1 c.c. he takes ten lethal doses, or 1 c.c., and in a test-tube adds, say, 0·3 c.c. of the blood to be tested; in another tube to an equal quantity of the poison is added 0·25 c.c. of the blood, to another 0·2 c.c., to a fourth 0·15 c.c., and to still another 0·1 c.c. Each of these mixtures injected into a guinea-pig will have a different effect. That containing the largest quantity of blood may be so thoroughly neutralised that the guinea-pig does not manifest a single symptom of ill-health. If this be an exact neutralisation we shall find that the second guinea-pig, which received 0·25 c.c. only, may have a slight doughy swelling at the seat of inoculation, and along with this there may be a certain rise of temperature; otherwise the animal remains comparatively well, continues to eat, and very soon recovers its normal condition. In the third case the local manifestations are much more distinctly marked, the swelling is larger, there may be distinct necrosis in the centre of the swelling, and the temperature rises higher than in the other case, but after some time the animal becomes again perfectly healthy; whilst in the fourth and fifth doses the animals succumb, the fifth much more rapidly and with far more marked toxic symptoms though with less local change than the fourth. It is of course unnecessary to go beyond the stage at which the slight swelling makes its appearance in order to test the antitoxic activity of the blood, as the point at which the neutralisation is complete gives the determining figure for the strength of the antitoxic serum. In order to obtain a definite standard of dosage Behring and Ehrlich have described what they term a normal serum—that is, a serum of which 0·1 c.c., added to ten times the lethal dose, is exactly sufficient to render it innocuous. One c.c. of such normal serum contains what they term one immunisation unit; so that from this may be calculated the strength of any serum used. If it required 0·3 of the serum, as in the above-mentioned case, to neutralise ten lethal doses of toxine, 1 c.c. of the serum would contain only 0·3 immunisation unit; but a serum of which 0·01 is sufficient to neutralise ten lethal doses of toxine is ten times the strength of normal serum, or 1 c.c. contains ten immunisation units. In horses highly immunised the serum may be fifty or even a hundred times as active as normal serum. It is found that at least 500 of these immunisation units or ten of a 50 units serum, or five of a 100 units serum are necessary to produce the desired effects in cases of diphtheria, whilst in certain cases it may be necessary to give still larger quantities. Roux and Martin have now adopted Behring's original method of testing the strength, which they bring up to a constant before using. They inject a guinea-pig weighing 500 grammes with 0·01 c.c. of the serum, and twenty-four hours later inject 0·5 c.c. of a living diphtheria culture strong enough to kill an unprotected guinea-pig in twenty-four hours. If this small dose of the serum protects the animal against the action of the bacilli the serum is considered to be sufficiently powerful. One of the difficulties in connexion with the preparation of this antitoxic serum is the lengthened period necessary for its production. Roux has brought it down to three months, and that is the time generally accepted as the practicable limit. Quite recently, however, Dr Klein has obtained a serum which he finds has a specific action on the membrane in twenty-three and in twenty-six days. He believes, however, that the active principle in this case is not an antitoxin in the proper sense of the word, but a substance which acts on the diphtheria bacilli only. Dr. Klein will shortly publish the results of his observations, and it is unnecessary to do more than refer to them. In this country Dr. Ruffer was the first some months ago to obtain antitoxic serum from the horse; there are now at least six other sets of horses being prepared, so that in the course of the next few months a considerable number of observations will probably be available for statistical purposes. Having determined that the blood has reached the necessary stage of antitoxic activity the animal is bled. In the case of the horse this may be done to the extent of one or even one and a half gallons without producing the slightest ill effects; if the animal is well fed and his condition keeps up he may be from time to time re-injected with fresh quantities of toxine, and at the end of a month, if necessary, a similar quantity of equally potent blood may be again withdrawn: and this may in most cases be repeated time after time without impairing the general health of the animal. Roux and Yersin and Sidney Martin's experiments as to the effects of the toxine on nerves and muscle would lead us to expect some form of nerve or muscle degeneration after a prolonged treatment with the substance, but the horse appears to be so slightly susceptible to the disease that these changes seldom occur or are long delayed. The blood is, of course, taken with strict antiseptic precautions into sterilised glass vessels. It is placed in ice until coagulation has become complete; the clear serum is then carefully drawn off into sterilised flasks containing a few fragments of camphor, kept cool and from the light. The Germans, on the other hand, add a 0·5 per cent. watery solution of carbolic acid.

SERUM STATISTICS.

What is claimed for the treatment by those with most experience of it? First, they hold, and statistics bear them out in this contention (even assuming that we take the statistics at their lowest value), that the case mortality from diphtheria, under the most varying conditions as regards virulence of epidemic, age of patients attacked and treated, locality in which the disease breaks out, and hospitals in which the cases are treated, is considerably diminished. This may be gathered from a very casual inspection of Table III., in which the case mortality without the use of antitoxin is given to the right, and to the left the case mortality where antitoxin has been used. It must be borne in mind that in this country, where the conditions are apparently more favourable than those in any other country, we had a case mortality in London of 23·3 per cent. in the year 1893; and in our hospitals, in which the conditions are certainly very much more favourable than either the French or German hospitals, the mortality was 30·3 per cent. One most important feature about the foreign statistics is that the cases were examined bacteriologically, so that in the opinion both of the clinical observer and the bacteriological worker the cases under treatment were undoubtedly diphtheritic in their nature. This is a most important point to bear in mind, as the case mortality cannot thus be modified in any way by the so-called doubtful cases, so that in the percentage of deaths the favourable results, if favourable they are, cannot be accounted for on any supposition that the cases treated were not cases of true diphtheria.

It is evident that should the antitoxic treatment of diphtheria become general we commence work under much more favourable conditions than obtain in the French and German hospitals, and as regards those cases that come into hospital, bearing in mind the fact that so many have to be admitted when the disease is far advanced, we cannot expect to bring down the percentage of fatal cases in the same proportion that has been done abroad, even supposing that all that is claimed for the antitoxic serum method of treatment is ultimately proved to be borne out by further experience. It may be objected, of course, that we have been able to bring our case mortality in this country so low by other means than those now suggested, but after all has been done much still remains to be done. In the light of statistics alone we are not justified in refusing to use a method of treatment which even abroad where the conditions are otherwise so unfavourable, has brought about such a marked diminution in the case mortality. It must be remembered in this connexion that the statistics have in many cases been drawn from *children's* hospitals, so that the factor of age can to a certain extent be measured. More than this, however, we have direct clinical experience of the fact that in a large proportion of cases the exhibition of the antitoxic serum acts almost like a charm, especially, as already mentioned, in those cases in which suppurative changes have not commenced. The temperature falls suddenly on the first or on the second day (except in the very severe forms of the disease, when the fall does not come on so quickly, and then takes place more slowly); the formation of the false membrane appears to be checked almost immediately—certainly within twenty-four hours. On the second or on the third day the membrane softens, is thrown off, and as it is shed the bacilli gradually disappear, sometimes as early as the third or the fifth day from the commencement of the treatment. The effect on the pulse is not so marked, but following the fall of temperature the pulse gradually becomes fuller and less rapid, and the general condition of the patient is markedly improved. It is also maintained, though on this point carefully compiled statistics are not yet available, that the sequelæ usually associated with diphtheria are neither so grave nor of such frequent occurrence when the serum treatment is used. It can certainly not be hoped to avoid these sequelæ in cases in which the disease is advanced before the treatment is applied, for much of the mischief in such cases has commenced before the poison has become neutralised, and so far as can be made out it is only in these cases that anything more than a temporary paralysis of the soft palate and a transient albuminuria is observed, and these apparently in a much smaller proportion of cases than in cases not treated by the serum method. There undoubtedly occurs in certain cases an erythematous rash, almost like urticaria, associated sometimes with sharp pains in the joints, especially of the knee; but this condition, though unpleasant to the patient, soon passes off, and has never, so far as I have been able to gather, been of a very severe character, and is met with in only a small percentage of the cases treated. Here, again, we have no definite statistics. It has also been maintained that this injection might lead to the formation of abscesses. Here, however, we have definite statistics, as Roux and Martin found that an abscess was formed in only 3 cases out of 3000 injected, and even in these cases they were of trifling importance; whilst "abscess formation resulted only once in 200 injections made at the Kaiser and Kaiserin Friedrich Hospital, Berlin."

CONCLUSIONS.

The necessity of carefully carrying on this treatment and improving the method if possible is proved: 1. By the results obtained from clinical examination. 2. From the startling results obtained by experiments on small rodents which can be readily protected against enormous doses of most active diphtheria toxine. 3. From the remarkable property possessed by this antitoxic serum of neutralising the diphtheria toxines, even when the process is carried out in an ordinary test-tube. 4. From the fact that in diphtheria the disease is essentially the result of the manufacture of poison practically outside the body, so that if we can attack the disease at its source, and can at the same time neutralise the poisons that are diffused into the body, we have the control of the disease; and as the disease runs such a rapid course it is possible to ascertain whether the case is improving or going backwards almost immediately, or within the course of thirty-six hours. When the disease is once got under we have little or no fear of any return. In this respect the disease differs most materially from tuberculosis, in which, as is well known, the disease may be distributed very widely through the body, and the poison-forming bacteria make their way comparatively easily from point to point throughout the tissues, so that even though we are able to attack and overcome the disease at one point, it may be still doing its work at twenty others, and it is impossible to determine for a very lengthened period whether the improvement maintained even at a single point is permanent or not. 5. It is not even a process of vaccination, though it is quite possible, from what has been seen of experiments on animals, that a temporary protection may be obtained which will carry the child over the period of danger in an infected house or district. The antitoxic serum is a direct therapeutic agent, and need only be used in patients actually suffering from the disease where benefit may be expected to accrue. 6. Cautious observers, both amongst pathologists and physicians, who have had an opportunity of observing a number of cases treated have acknowledged that they have been surprised at the results obtained, and Virchow, who almost from the first deprecated the extravagant claims that were put forward for Koch's tuberculin, has stated that, in view of the remarkable results obtained in carefully observed cases of diphtheria, it is the duty of every physician to employ the antitoxic serum remedy, in spite of the fact that a certain number of attendant drawbacks have been described. A good deal has been written about the danger of injecting organic fluids into the body, especially organic fluids taken from animals suffering from disease such as glanders and tuberculosis. The obvious answer to such objections is that serum is never taken from an animal so diseased. As regards glanders, if mallein—that is, the products of the glanders bacillus, from which living bacilli have been absolutely removed—is injected into the subcutaneous tissues of a healthy horse, there is usually as little disturbance, either local or general, as if a similar quantity of neutral salt solution had been injected; but if the animal has glanders a local manifestation occurs at once: a swelling at the point of injection is seen, the temperature of the animal rises, and this so regularly that anyone accustomed to the use of mallein as a diagnostic agent can determine within twelve hours whether the horse is suffering from glanders or not. By the use of tuberculin in a similar fashion the freedom of the animal from tuberculosis can be determined, so that the horse may very readily be proved to be in good health as far as these two diseases (which are the only two dangerous to man about which there is very much difficulty of diagnosis) are concerned. It has also been asserted that the horse is suffering from diphtheria, and that only the poison which is accumulated in the blood is injected into the human patient. Against this may be placed the fact that the toxine will certainly not neutralise its own action, and if we are dealing simply with toxine we should have a summative and not an antidotal effect. Many of those here have seen cases of diphtheria, at first apparently mild, gradually develop the most distressing symptoms, and nothing has been more pitiable or painful in my experience than to see the distress of the little sufferers

as the disease has become more fully developed, and one has felt one's utter helplessness to relieve more than temporarily the dreadful suffering one has had to witness, and I—for one—and I am sure that in this my feelings are shared not only by medical men, but also by those who have had to watch and wait whilst such scenes were going on, and that any remedy that promises results even far less favourable than those claimed for this method of treatment should be placed at the disposal of those who have to do battle with this terrible disease. We must improve the sanitary conditions and the general surroundings of those who are most liable to the disease, in order to prevent the disease or to keep it at as low a limit as possible, but we have also a duty to perform to those who are actually smitten down.

[In conclusion, Dr. Woodhead drew attention to the munificence of the Worshipful Goldsmiths' Company and the public spirit that has actuated the members of the Metropolitan Asylums Board.]

THE PREPARATION OF BEHRING'S DIPHTHERIA ANTITOXIN.

BY E. KLEIN, M.D., F.R.S.

WITH the view of enabling those who are engaged in preparing from the horse Behring's antitoxin to obtain it in a much shorter time than the present methods permit, I take this opportunity of publishing the following notes.

I have been carrying out for the Medical Department of the Local Government Board a series of experiments that have for their object study of the preparation and of the nature of Behring's antitoxin. The *rationale* of the method used by Roux[1] for obtaining from the horse Behring's antitoxin seems to me difficult of acceptance from a theoretical point. This does not, of course, imply that the serum which Roux obtains has not the antitoxic power which he claims for it. The numerous experiments described by him[2] as made on the guinea-pig, and particularly his striking curative results on the human subject, can leave no doubt as to this. What seems to me the chief difficulty of his method is that horses require in his process a very long and tedious series of numerous injections, some direct into the vessels, with enormous quantities of pure diphtheria toxin (sometimes 200 c.c. of pure toxin in a single injection), for the production by them of serum of considerable antitoxic power. Roux explains his procedure by *assuming* that by injection of increasing quantities of pure strong toxin the tissues of the horse are again and again stimulated and sustained in their formation (secretion) of antitoxin.

In all infectious diseases the degree of resistance to a given disease acquired by one or more previous infections rests with the blood and the tissues. In some of the infectious diseases—e.g., small-pox, scarlet fever, and anthrax—this condition of resistance against a fresh infection amounts to almost complete immunity. This condition of resistance is brought about by and (as far as we know at present) depends on the growth and life processes of the specific microbe in the infected body during the antecedent attacks, whether natural or experimental. The precise manner, however, in which this condition of resistance is created is as yet not clearly made out. Various views have been put forward to explain it, which it is not necessary to enter into here; they are all (including Roux's) based more or less on assumptions. The chief facts experimentally established by the researches of Behring, Kitasato, R. Pfeiffer, Wassermann, and others are—that the blood of an animal which has acquired immunity possesses antitoxic property, that the degree of antitoxic property of the blood stands in direct relation to the degree of resistance acquired by the animal furnishing it, and, further, that this antitoxic property of the blood not only renders the particular animal capable of overcoming and of withstanding the disease that is in question, but also other animals into which it is introduced. In the case of the sheep and goat, Behring has shown that it is possible by repeated diphtheria injections to render these animals gradually highly tolerant against diphtheria, and at the same time to confer on their blood a high degree of antitoxic power. By virtue of this antitoxic condition of their blood small amounts of the blood serum are capable of protecting guinea-pigs against inoculation of diphtheria bacillus, and of neutralising in these animals the diphtheria toxin if it be injected. The two substances—toxin and antitoxin—are, then, in their proper proportions, mutually antagonistic.

Now, Roux, as I have said, introduces over and over again large amounts of pure diphtheria toxin into a horse, which has already by previous injections of the pure toxin been rendered to a certain extent resistant against this toxin (it is because of this resistance that he finds it necessary to increase the dose of the toxin)—that is to say, a horse that has by previous injections of diphtheria toxin become more or less resistant must possess a corresponding amount of antitoxin in its blood. But since the two substances—viz., toxin and antitoxin—are antagonistic and neutralise one another it follows that each successive injection of a large quantity of pure diphtheria toxin into a given horse must neutralise a proportionate amount of antitoxin already formed and present in the blood of the animal. This possibly explains the extraordinarily long time which Roux's horses take before their blood is rendered sufficiently antitoxic. These considerations led me to adopt a different plan in the preparation of antitoxin serum from the horse—a plan, indeed, which corresponds more closely than Roux's to the natural process. By this plan I have succeeded in obtaining from the horse antitoxic serum in a far shorter time than is possible by Roux's plan; and, as observation proves, this serum is possessed of considerable antitoxic power. The principle of my method is as follows. By a few injections of attenuated living bacilli—the attenuation is due to age of the culture—along with their toxin into the horse, this animal is furnished with a certain degree of resistance. Next, large quantities of living diphtheria bacilli (*minus* their toxin), taken from the surface of solid cultures of gradually increasing virulence, are repeatedly injected subcutaneously, so as to allow the bacilli to grow and to multiply, and to gradually produce within the body of the animal, as is the case in the natural order of things, the toxin, and ultimately the antitoxin.

Every such injection on my plan is followed by a temporary reaction, a rise of temperature varying between 0·6° and 1·8° C., and a local tumour; but there is no suppuration at the seat of inoculation. As soon as one such tumour has disappeared a new injection is made, as stated above, with large quantities of living bacilli scraped from the surface of solid media (agar and gelatine). By the third week the animal will bear the scrapings from the surface of two whole agar cultures of virulent character. In the case of one horse I, by this method, obtained antitoxic serum in twenty-three days, in another horse in twenty-six days, from the date of the first injection. If after the first bleeding of the horse it be again twice or thrice injected with virulent living bacilli (taken from the surface cultures) the further serum obtained from such horse possesses even increased antitoxic power.

The antitoxic power of the serum in the twenty-three and the twenty-six days' horse was tested on guinea-pigs, and it was found that one part of serum was capable of protecting from 20,000 to 40,000 grammes body weight of guinea-pig against the living bacilli and toxin (not merely against pure toxin), considerably more than a fatal dose of living bacilli having been injected. This serum has been used in cases of diphtheria on the human subject—some of them very severe cases. It was injected in doses of from 5 c.c. to 8 or 10 c.c., and in severe cases the injection was repeated within twenty-four hours. The result was highly satisfactory. In some severe cases it was particularly striking, the further spread of membrane being entirely arrested, and rapid loosening and discharge of the existing membrane being also a conspicuous feature.

[1] Described in the Annales de l'Institut Pasteur, September, 1894.
[2] Loc. cit.

TWO CASES OF OVARIOTOMY PERFORMED TWICE ON THE SAME PATIENT.[1]

BY ALBAN DORAN, F.R.C.S. ENG.,
SURGEON TO THE SAMARITAN FREE HOSPITAL.

IN the summer of 1894, within the space of three weeks, I performed ovariotomy upon two patients who had already undergone that operation. The necessity of removing the remaining ovary, even should it appear healthy, when an ovarian cyst or tumour is extirpated has been strongly urged by certain authorities. Hence second operations on the same subject are worth consideration.

[1] This paper is based on the specimen of papilloma figured below, which was exhibited for its clinical features at a meeting of the West London Medico-Chirurgical Society, Dec. 7th, 1894.

The first case was a simple matter. A woman aged thirty-nine years, married eighteen years, was tapped by Dr. Robert Barnes fifteen years previously (nine months after her first confinement). A year later Dr. Barnes performed ovariotomy. She bore four children after the first operation, the youngest being three years old. In the summer of 1893 the abdomen began to swell. Sir Spencer Wells saw her, and diagnosed ovarian cyst. On June 14th I operated, removing a multilocular cyst of the right ovary. There were troublesome adhesions to the mesentery and small intestine, and the tumour was sessile. I found the uterus drawn to the left by the cicatrisation of the left broad ligament, a minute tubercle representing the stump of the tumour removed fourteen years previously. The old abdominal cicatrix was sound and strong. During convalescence the temperature never rose above 99·4° F. This case is clear enough. The patient bore several children after Dr. Barnes had rightly spared one ovary. The operation proved difficult, but none of the trouble was due to the previous ovariotomy. The second case presents different features. I operated on both occasions, taking care to examine and note the state of the spared ovary when I performed the first ovariotomy, and found that the tumour was papillomatous. Von Velits,[2] on the strength of statistics, writes: "In order to prevent the necessity for a second ovariotomy we must, after the extirpation of an evidently malignant ovarian tumour (solid, malignant, and ciliated papillary growths), also remove the other ovary, though it may possibly seem healthy." Pfannenstiel[3] yet more emphatically declares that "in all cases of tumours which have a notorious tendency to become bilateral—namely, carcinoma, sarcoma, endothelioma, as well as papillary tumours, be they adenomata or carcinomata—the opposite ovary should be removed even when it appears healthy, whatever may be the patient's age. In all other forms of ovarian tumour the opposite ovary need only be removed when the patient has passed her fortieth year, or when it accidentally happens that there is some indication for castration (*sic*)." These are plain words. However, my case will first be considered. A woman aged fifty years (in 1889), married five years, and childless, noticed a swelling in the hypogastrium in the spring of 1887. It increased slowly. In October, 1888, I examined her. There was a bilobed obscurely fluctuating tumour reaching above the umbilicus. The uterus was connected with it. Sir Spencer Wells saw her with me. There was some doubt as to the seat of the tumour, and the patient was not ready to submit to an operation. In April, 1889, the period was seen for the last time in her life. In June, 1889, I found the tumour much larger, very irregular in shape, and pressing against the right hypochondrium. On June 6th I operated. Ascitic fluid escaped in considerable quantity when the peritoneal cavity was opened. The tumour was a multilocular papilloma of the right ovary, with a long, thin pedicle easily secured and divided. "The left ovary was elongated and atrophied." (These are the words of the note I made at the time. I did not like the look of the tumour.) The cyst weighed twelve ounces and contained five pints of glairy, pale brown fluid, all in loculi free from papillomata. The cavities, which contained papillomatous growths, held a clear fluid like water (the rule in ciliated epithelium papilloma), and one of the growths had perforated the wall. This latter condition was associated with ascites. Yet at the next operation there was no ascites, though there were perforating papillomata. The patient did not take chloroform well, and turned rather livid at the end of the operation, when I was introducing the abdominal sutures. No antiseptics were used and the instruments were kept immersed in warm water. During convalescence a miliary rash broke out over the thorax and abdomen. In June, 1894, this patient again consulted me, believing that another tumour had developed. Her fears proved to be correct. I found an obscurely fluctuating swelling occupying the lower part of the abdomen, chiefly to the left, where it reached above the level of the umbilicus. The fundus uteri lay above the pubes, on the surface of the tumour. The abdominal cicatrix was strong and free from hernial distension. On July 3rd I operated. Dr. Amand Routh had previously reported: "Heart sounds normal at base, slight systolic bruit at apex, not audible posteriorly. Hæmic murmur not audible, except when lying down." There was no œdema anywhere and the urine was free from albumen. On this occasion I used antiseptics, the instruments and ligatures being immersed in a 1 in 40 carbolic solution. I exposed an ugly-looking lobulated cystic tumour with papillomatous masses perforating its walls. Three loculi required tapping separately, and a pint and a half of glairy, clear ovarian fluid escaped. The mass remained fixed. I drew up the uterus a little, the recti being perfectly relaxed. The patient at once became livid; she had been taking chloroform carefully administered by means of a Junker's inhaler. In about three minutes she breathed well, after lowering of the head and drawing forwards of the tongue. I enlarged the incision till it was nearly three inches long, and managed to draw a mass of papilloma out of Douglas' pouch. This mass, with the rest of the tumour, was connected with the uterus by a short and broad pedicle. I succeeded in transfixing and ligaturing the pedicle, which was divided below the level of the papillomatous growths. The right broad ligament was thin and shortened, drawing the uterus to its side. Not a trace of a nodule remained to represent the pedicle of the tumour removed five years ago. On the third day, when the weather was extremely close, a profuse miliary eruption broke out as before. It disappeared a few days later when the weather was cooler after thunder. The patient made a good recovery and was in excellent health in November, 1894. The tumour, here figured, was essentially papillomatous; it

Papillomatous ovarian cyst removed five years after a similar cyst in the opposite ovary. *a a*, Papillomatous growths with long pedicles. *b*, Accessory fimbria on Fallopian tube. *c*, Fatty growth on tube.

represented the ovary and did not invade the folds of the broad ligament, excepting close to its inner limits. It consisted of three main (and other smaller) loculi, stuffed with papillomata, some of which sprang from very long and thick pedicles, one over an inch and a half long.[4] Papillomatous masses had perforated the cyst wall at several points.

I have said enough about the pathology of the case to show that the tumour was not of an innocent character. If the operation had been deferred for many months the papillomata would have grown beyond the limits of extirpation by surgery, and the disease is clinically malignant. Had I removed the flat, atrophied, apparently healthy ovary in 1889 I should have spared both myself and the patient much anxiety and two troublesome complications, which both recurred at and after the second operation. Yet surgeons are not prophets, and the chance of so atrophied an ovary becoming diseased seemed slight in 1889. The surgeon should hesitate to remove a sound organ on the strength of a theory. For the grounds of that theory the writings of Von Velits and Pfannenstiel, already quoted, should be consulted. Statistics show that recurrence of ovarian new growths in an ovary left behind are not rare. The number, certainly a majority, where recurrence has not taken place cannot easily be estimated, for evident reasons. Olshausen makes out that 75 per cent. of papillomatous cysts are bilateral. I have operated on a considerable number that were bilateral; that is to say, both ovaries were found to be diseased at one operation.

[2] Ueber die an derselben Person wiederholten Laparotomien, Zeitschrift für Geburtshülfe und Gynäkologie, vol. xx., 1890, p. 384.

[3] Ueber Carcinombildung nach Ovariotomien, ibid., vol. xxviii., 1894.

[4] This condition is uncommon. Pedunculated ovarian papillomata are represented in Olshausen's Krankheiten der Ovarien, second edition, 1886, p. 68, fig. 14. In specimens 4501-2 in the Museum of the Royal College of Surgeons of England, Pathological Series, papillomata growing outside the ovary spring from short pedicles. Mr. Bland Sutton, in "Surgical Diseases of the Ovaries," p. 101, fig. 40, has observed a pedunculated non-paroöphoritic papillomatous growth.

Supposing one ovary to be healthy, some surgeons might conclude that its normal condition implied that it had no tendency to become papillomatous. The archives of medical literature include a Society paper[5] of more practical interest than the monographs just quoted. These are statistics of the highest value when it is remembered that they were prepared by the author, Sir Spencer Wells. They do not, however, specially refer to papilloma. The opinion of that distinguished veteran is that there is risk in removing a second ovary at one operation. "If there is no suspicion of disease I will not remove it." These words formed the reply to a long discussion worth consideration. Dr. J. B. Hunter of New York, like myself, hesitated about the value of statistics. Howard Kelly went further. With his usual care he made necessary deductions, and these showed that out of 700 unilateral ovariotomies in Sir Spencer Wells's own practice, where the patient lived long enough for chances of recurrence, there were only eight recurrences. These include all kinds of ovarian tumour. On the other hand, Dr. Goodell concurred with the German theory and practice. His words deserve quotation: "At this moment I can recall only two cases of the return of the disease in the sound ovary, but the intense disappointment and mental agony which these women suffered I cannot forget. After the second operation one died and the other lived, but the mental strain on the survivor has upset her nervous system. This experience influenced me in coming to the conclusion to remove the second ovary whenever I could find a decent excuse for it." As to patients near or past the climacteric, Dr. Goodell is of the same opinion as Pfannenstiel. Dr. Gaillard Thomas agreed with Dr. Goodell: "The return of the cystoma in the other ovary was so frequent that one was called upon to remove it unless there was a good reason to do otherwise." He adds: "I very often take out the second ovary and say to the bystanders, 'I can find no reason for removing this one.'" I must, however, remark, in respect to the above opinions of the two eminent American authorities: firstly, that Dr. Goodell had only two recurrences in his long experience—and, by the way, it is not noted whether in either case the tumour was papillomatous; secondly, neither of my two cases suffered much from mental strain. Their nervous systems were certainly not upset. Lastly, the practice of justifying a step in an operation "to the bystanders" is objected to by many surgeons. It can be defended, I am willing to admit, but on the question of papilloma it cannot do any good. In conclusion, I must say that my second case rather strengthens the German theory. Nevertheless, the removal of a healthy ovary is not to be lightly undertaken. Papilloma, however, has a very bad reputation. I trust, therefore, that operators and surgical registrars will keep a close watch on cases of this disease where one ovary only has been removed, and will conscientiously report recurrences and second ovariotomies on the same patient.

THE RESULTS OF RADICAL OPERATION FOR MALIGNANT DISEASE OF THE LARYNX, FROM THE EXPERIENCES OF PRIVATE PRACTICE.

BY FELIX SEMON, M.D. BERL., F.R.C.P. LOND.,

PRESIDENT OF THE LARYNGOLOGICAL SOCIETY OF LONDON; PHYSICIAN FOR DISEASES OF THE THROAT TO ST. THOMAS'S HOSPITAL, ETC.

AFTER the subsidence of the almost universal interest which during, and for a time after, the illness of the late Emperor of Germany was taken in malignant disease of the larynx the literature of the subject, which from 1887 to 1889 had assumed the dimensions of a spring tide, gradually fell to a very low ebb, and in the course of the last three or four years few communications of importance referring to that disease have been published. It would, however, be a mistake to regard this silence as a sign of stagnation. If, since the collective investigation of the *Centralblatt für Laryngologie*[1] *&c.*, not much progress has been made with regard to diagnosis, yet the knowledge then gained in this respect has led to radical operation being now undertaken at a period much earlier than formerly and to a corresponding diminution of its extent; while at the same time the technique of the operation itself and of its after-treatment has made considerable progress. As a further consequence of this the results have become much more encouraging than they were at the time when the last large statistics were compiled, and it is to be hoped that the collective investigation undertaken by Dr. Johann Sendziak of Warsaw, with a view of ascertaining the present results of radical operation for the cure of malignant disease of the larynx, which is now in progress, will give evidence of this improvement.

Whilst collecting my own material for contribution towards this investigation it occurred to me that previously to forwarding it to Dr. Sendziak I ought to publish my experiences in a separate form. My reasons for thus thinking are various. In the first place, it will be seen that my opportunities of observing cancer of the larynx and forming views on that subject, including the question of radical operation, have been so unusually large that from that point alone a publication of my experiences and views on the question would seem to be justified. Secondly, it is in the nature of things that in a collective investigation such as that undertaken by Dr. Sendziak the experiences and results of a single observer, however large his material may be, will be swamped in the general numbers, although his views may be based upon a much larger number of observations than those of many other contributors together, and although his individual results may be much more encouraging than those gained from the general review of all the cases sent in. Finally, and above all, having not merely modified but completely changed my views with regard to thyrotomy with subsequent removal of the diseased area as a curative operation in malignant disease of the larynx—an operation on which in 1886 I expressed on the strength of literary information a very unfavourable opinion[2]—I consider it my plain duty now to give the same publicity to the conversion of my views which was accorded to my original statements.

The following paper is the outcome of these considerations. It is intended to give in as short and concise a form as possible an account of the experiences on malignant disease of the larynx gained in my private practice between 1878 and 1894, and of the results of radical operations undertaken in my private practice between 1886 and the present day for the cure of that disease. Questions of diagnosis, etiology, &c. will only incidentally be referred to, and these points, together with a more detailed description of my individual cases, will, I hope, be discussed on a subsequent occasion. It is only necessary to add that the subdivisions into "intrinsic" and "extrinsic" malignant disease of the larynx, which will be constantly referred to in this paper, are subjects of great practical importance so far as the question of undertaking a radical operation is concerned. Following Krishaber,[3] I include in the term "intrinsic" the tumours originating from the vocal cords, the ventricles of Morgagni, the ventricular bands, and the subglottic cavity within the borders of the larynx proper. The term "extrinsic" is applied to tumours growing from the epiglottis, the posterior surface of the cricoid plate, the aryteno-epiglottic folds, and the interarytenoid fold.

Number of cases observed.—From Oct. 10th, 1878, until Nov. 22nd, 1894, I have seen in private practice 103 cases of malignant disease of the larynx. This sum is distributed over the individual years as follows: in 1878, 1; in 1879, 1; in 1880, 1; in 1881, 4; in 1882, 2; in 1883, 5; in 1884, 1; in 1885, 6; in 1886, 9; in 1887, 6; in 1888, 7; in 1889, 9; in 1890, 9; in 1891, 11; in 1892, 10; in 1893, 9; and in 1894, 12: total, 103. Taking into consideration the natural increase of practice within seventeen years it will be seen from this list that my experiences certainly do not lend any colour to the nowadays often-heard cry of the increase of internal cancers—at any rate, not so far as the larynx is concerned. This list does not include: (1) the cases seen by me from 1877 to 1883 at the Hospital for Diseases of the Throat or the cases seen from 1882 until the present at St. Thomas's Hospital; (2) the cases in which malignant disease starting from the thyroid gland, the œsophagus, the lymphatic glands in the neck, &c.,

[5] Sir Spencer Wells: Cases of Ovariotomy performed twice on the Same Patient. Transactions of the American Gynæcological Society, vol. xiii., 1888.

[1] Internationales Centralblatt für Laryngologie &c., vols. v. and vi., 1888–89.

[2] Thyrotomy, with subsequent extirpation through the wound, yields very bad results in cases of malignant growths and should not be attempted. Heath's Dictionary of Practical Surgery, 1886, vol. i., p. 897.

[3] Gazette Hebdomadaire, 1879, vol. xvi., p. 518.

secondarily invaded the trachea; and (3) those cases in my private practice in which, amongst other possibilities, that of the disease being malignant had also to be taken into remote consideration, and in which I had no opportunity of verifying the diagnosis by subsequent examination. But it does include: (1) those cases in which, although the diagnosis could not be formulated with absolute certainty on the occasion of the one or the few examinations I had the opportunity of making, all chances were in favour of the disease belonging to the class of carcinoma or sarcoma of the larynx; and (2) a few cases in which the carefully observed clinical course of the disease did not tally with the result of the microscopic examination. Of the two last-named categories I find in my case-books notes of twelve cases. In the remaining ninety-one the diagnosis was positively confirmed by the further course of the disease, and in a good many instances by microscopic examination of parts of the new growth removed either intra-laryngeally during life or obtained at the necropsy.

Sex.—Of my 103 cases seventy-nine were men and twenty-four women. This proportion agrees entirely with all previous observations, the male sex having always been found to be much more liable to laryngeal cancer than the female.[4] But whilst my experience so far only corroborates that of previous observers I have to mention one very extraordinary fact, of which I myself had never become aware in the course of all these years and which only forced itself upon me in the course of collecting my material: among my seventy-nine male patients twenty-one only—i.e., about one-fourth of the total number—suffered from purely "extrinsic" malignant disease of the larynx, but out of the twenty-four women patients not less than fifteen—i.e., considerably the greater half—were affected with this, as will be seen, much more intractable form of the fell disease, and of these, four only suffered from cancer of the epiglottis, whilst in not less than eleven the posterior aspect of the cricoid cartilage was the seat of the disease. I cannot account for this remarkable difference; it may of course be only a pure accident, but when one reckons with such, comparatively speaking, large numbers as those which I am able to adduce one is somewhat loth to believe in a pure accident when the numbers speak so eloquently. I will of course not indulge in any speculation as to its possible causes, but simply wish here to register the fact.

Ages.—The age of my patients is distributed as follows: 20 to 30, 1 (male, 29); 30 to 40, 2 (one male 38, one female 34); 40 to 50, 25; 50 to 60, 43; 60 to 70, 19; 70 to 80, 10; and 80 to 90, 3 (all men, 81, 81, 83): total, 103. This again fully corroborates previous experience. The thirty years of life between 40 and 70 form the overwhelming proportion of all cases of malignant disease of the larynx coming under observation, and of these thirty years again by far the largest individual proportion is taken up by the decade between fifty and sixty. It deserves, however, special consideration that a comparatively large number, twenty-five—i.e., a full fourth of all the cases I have seen—belongs to the decade from forty to fifty—that is to say, to that portion of life in which also innocent growths not rarely are known to originate and in which the differential diagnosis between benignancy and malignancy sometimes is one of the greatest possible difficulty, particularly in the earliest stages.

Situation of the growth.—In 38 of my 103 cases the growth was of the "extrinsic" variety, in 55 of the "intrinsic" variety, and in 10 it was "mixed"—i.e., it involved parts inside the larynx as well as outside. In the 38 extrinsic cases two "doubtful" ones are included, and in the 55 intrinsic ten "doubtful" ones. Coming to particulars the exact situations were as follows:—

Extrinsic.		*Intrinsic.*	
Epiglottis	8	Vocal cords	15
Aryteno-epiglottic ligament (probably)*	5	Ventricular bands	3
Inter-arytenoid fold (probably)*	6	Ventricle of Morgagni	2
Posterior surface of cricoid cartilage†	19	Not to be made out with certainty	35
Total	38	Total	55

* In two cases only was the disease absolutely limited to the aryteno-epiglottic fold itself, but in the three others enumerated under this heading this part seemed to have been the starting point and formed the central portion of the new growth. Similar conditions apply to the cases in which the disease appeared to have started from the inter-arytenoid fold.

† These cases were not included in my list of "*intra*-laryngeal" cancer given in the Internationales Centralblatt für Laryngologie, vol. v., 1888-89, p. 186.

From these statements it will be seen that amongst the *ex*trinsic forms malignant disease on the posterior surface of the cricoid cartilage seems to occur by far the most frequently; whilst in the *in*trinsic variety, so far as can be made out, malignant disease of the vocal cords by a long way heads the list. The fact that in hardly more than one-third of the intrinsic cases the exact point of starting could be ascertained with certainty, and that in no less than thirty-five cases this could no longer be made out, finds its natural explanation in the circumstance that unfortunately even now the opinion of the specialist is generally sought only when the disease is already in an advanced stage, and yet the conditions in this respect are infinitely more favourable in private than in hospital practice.

Histological characters of the growth.—In the overwhelming majority of all my cases in which a microscopic examination of the growth was made, this was found to be of the nature of epithelioma (squamous-celled carcinoma). I cannot give the exact number of these cases because in a few instances I am afraid I forgot to add the information, mostly obtained at a later date by the microscope, to my notes; the total number, however, cannot be less than about between thirty and forty cases of squamous-celled carcinoma. Of other varieties there were one case of columnar-celled carcinoma (this in the case of the young man aged twenty-nine years); one case of villous carcinoma; three cases of sarcoma (one in a man over eighty years of age); and one, or possibly two, cases of cavernous fibro-sarcoma. I have not seen a single case of spheroidal-celled or glandular-celled carcinoma. The enormous proportion of epithelioma observed in my cases is completely in accord with the experiences of others.

Principles of selection of cases for radical operation.—Up to May, 1886, I never advised radical operation in cases of malignant disease of the larynx. The results of both total and partial extirpation of the larynx at that time were certainly not very encouraging,[5] and both operations were still entirely *sub judice*. Mere thyrotomy, on the other hand, with removal of the soft parts only, had met with almost universal condemnation. Thus Paul Bruns,[6] whose excellent statistics for many years have served as standard references concerning this question, showed that the results of thyrotomy for malignant disease of the larynx at that time were extremely bad. Some operations were followed by immediate death, others could not be completed, and in the remaining cases, with two exceptions only, recurrence followed within a very short time. Bruns himself, therefore, in his conclusions stigmatised thyrotomy for malignant disease of the larynx as "equally unadvisable as the intra-laryngeal method." Morell Mackenzie, when summarising the results of Bruns' statistics, observes:[7] "It will thus be seen that the results of thyrotomy are extremely unsatisfactory." Butlin,[8] after reporting the results of other operators, states: "Not the slightest encouragement is afforded by these accounts to induce one to perform the operation of thyrotomy or the subhyoid incision for the removal of carcinoma, whether extrinsic or intrinsic. The disease is evidently far too deeply seated to admit of removal by so slight an operation." Under these circumstances it was not until one of my patients himself positively insisted on risking a radical operation that I ever consented. The patient in question was the late Mr. Montagu Williams, Q.C., and in his Reminiscences[9] he has given a very dramatic, if not absolutely accurate, account of our interview. The result obtained in his case was so satisfactory that it encouraged me to advise radical operation henceforth in suitable cases, and I have not had cause to regret the change of my attitude. Altogether I have in private practice advised radical operation, from May, 1886, up to the present, November, 1894, in sixteen cases of malignant disease of the larynx. In four of these cases, however, my opinion was only desired as that of a consultant, and I have therefore not felt justified in

[4] Incidentally it may be stated that I have never found any appreciable influence of tobacco smoking in any form upon the origin of the disease. Needless to say, amongst my seventy-nine male patients there were several strong smokers and a good many moderate ones; but, on the other hand, there were many who had never smoked, and still more who had only quite occasionally indulged in a cigar, cigarette, or pipe. Nor was any influence of the nature of profession or occupation recognisable in my cases, there having been proportionately just as many private gentlemen who had never indulged in exceptional voice-use amongst my patients as professional voice-users.

[5] See, for example, my report in Heath's Dictionary of Practical Surgery, vol. i., p. 897.

[6] Die Laryngotomie zur Entfernung intra-laryngealer Neubildungen. Berlin, 1878.

[7] Diseases of the Throat and Nose, vol. i., 1880, p. 342.

[8] Essay on Malignant Diseases of the Larynx, 1883, pp. 56 and 57.

[9] Leaves of a Life, vol. ii., p. 152 et seq. Macmillan and Co. 1890.

including them in the present series. So far as I know, in two of these four cases the result was successful, whilst in two others the patients succumbed from the consequences of the operation. I mention this latter fact merely because it will be seen from it that their inclusion in my tables would not have altered the proportion of success. In my own practice radical operation has been carried out in twelve cases; from 1886 to 1890 by surgical friends of mine, since then by myself. I have felt my way very cautiously, and it will be seen from the table which will follow that in one case only (Case 7) I have deviated from my universal rule—viz., to limit radical operation to cases of purely "intrinsic" malignant disease. In that case the chances appeared so excellent, owing to the easy accessibility, the small size and the pedunculated nature of the new growth, that radical operation seemed not only justified, but plainly indicated. In all the remaining eleven cases, however, the disease was strictly limited to the confines of the larynx proper.

In order to ascertain the proportion of cases suitable in my opinion for radical operation, from the total number observed between 1878 and the present day—viz., 103—those cases of course will have to be subtracted which I observed from October, 1878, to May, 1886. They number altogether 22, and must be subdivided into 11 cases of "intrinsic," 7 cases of "extrinsic," and 4 cases of "mixed" malignant disease. From this it follows that from May, 1886, to the present day I have seen in private practice 44 cases of "intrinsic," 31 of "extrinsic," and 6 cases of "mixed" disease, or, altogether, 81 cases. Taking into account the one case of extrinsic disease in which I recommended radical operation, it would follow that in 44 cases of intrinsic disease I only fifteen times recommended radical operations. From these 44, however, one more case has to be subtracted. This is the very extraordinary case referred to in a letter I published in 1887[10] in which, whilst only desiring to remove for microscopic examination a piece of a suspicious warty growth from the vocal cord of a man aged seventy-five years, by sheer good luck I succeeded in removing the whole growth with its base. The disease has not returned. The microscopic examination made by Mr. Shattock showed that we had to do with a most typical cornifying epithelioma. Thus 43 cases only of intrinsic malignant disease remain, in 15 of which radical operation was advised; and this gives as nearly as possible a proportion of 2 to 6—i.e., a small minority only in which I deemed radical operation advisable. The reasons of my advising in the majority of cases of intrinsic cancer I have seen, either directly against radical operation or, at any rate, only holding this out as a possibility to be thought of, were of various kinds. In a number of cases the disease, though still confined to the interior of the larynx, was of a very extensive character, and would in all probability have necessitated very serious operations, amounting in a good many instances to total extirpation of the larynx. In other cases the age of the patients was too advanced to justify the performance of a big operation. Again, in other cases there was either long-standing pulmonary, bronchial, or organic heart disease, or the general health had been shattered from other reasons, conditions which seriously militate against the performance of a major operation in the upper air passages. In the two cases in which, in spite of the objections just named, the operation was decided upon (see Cases 6 and 9 in the table), the result, I regret to say, was disastrous. I have never advised radical operation in cases in which the originally intrinsic disease had either passed beyond the confines of the larynx proper or in which it was primarily situated on the posterior surface of the cricoid cartilage, or in which affection of the cervical glands was already present. My reasons for not doing so were and are that in these cases not only must the operation be of a very extensive and most serious character, necessitating often not only the removal of the whole larynx, but also of a considerable portion of the upper part of the œsophagus, but also that it has under such circumstances often been found impossible to complete the operation, owing to the implication of the large vessels and nerves of the neck in the disease, and, finally, because, even if the operation can be completed and the patient recovers from its immediate effects, speedy recurrence is unfortunately too likely to take place. It appears to me that whilst an operation is still so much *sub judice* as radical operation of *any* kind in cases of malignant disease of the larynx, and whilst public opinion, even in the medical profession, is still so divided on the subject it is wiser to at first confine such interference to cases in which a reasonable prospect not only of recovery, but of immunity against recurrence, can be held out, and thus to convince public opinion of the legitimacy and hopefulness of such radical operations. I wish, however, not to be understood, by thus limiting my own practice to the more favourable class of cases, as if I deprecated or condemned the practice of those surgeons who even in more advanced or otherwise apparently less favourable cases have not hesitated to undertake radical operation. The results obtained in a good many of such cases have certainly justified their performance, and it may be hoped that with further advances in technique the general results even in this class of cases will become better than they have hitherto been. I am, however, in no fear of contradiction if I say that the aim of all surgeons ought to be to perform radical operation at such an early stage of the disease that the operation can be limited to the performance of mere thyrotomy with removal of soft tissues only. I shall insist on this point further on more fully, but consider it right to mention this question already in this connexion, lest I should be thought inimical to bolder procedures than my own.

(To be continued.)

[10] Brit. Med. Jour., June 4th, 1887.

TYPHOID FEVER COMPLICATING PREGNANCY; RECOVERY.

BY S. A. E. GRIFFITHS, L.R.C.P. LOND., M.R.C.S. ENG.

ON Sept. 24th I was called to see a woman aged twenty-eight years, who was in labour. The pulse was 130 and the temperature 103° F. She was delivered in about three hours easily and normally of a living child. The placenta came away normally, but there was slight prolapse of the uterus, the pulse and temperature being still about the same. On Sept. 25th and 26th the temperature was between 102° and 103° in the morning and between 103° and 104° in the evening. On the 26th, at about 4 P.M., the patient became maniacal, tossing and throwing herself about the bed, and shouting and singing at the top of her voice. This continued until about 4 o'clock the next morning, the mania lasting just twelve hours. There was no doubt of it being puerperal mania and not delirium, as the temperature was not higher than it had been before, neither had it the character of delirium. The mania passed off, there being no recurrence. I may say that her father has been in a lunatic asylum. I gave her a mixture of potassium bromide and chloral hydrate, but she took but little, throwing and spitting it about the room. About 2 A.M. I was called up as her friends could do nothing with her. I gave her morphia, placing a tabloid under the tongue, and shortly afterwards she became quieter. On the 27th the patient was quiet, the temperature was 104°, and the pulse 130, very weak. It was difficult to account for the high temperature, pointing strongly to its being a case of puerperal fever; against this there was the presence of the fever before her confinement. I obtained the following history. On Sept. 14th the woman felt feverish and did not sleep. She had "shivering fits" when she got up, had no appetite, and only took a little milk, gruel, and brandy, but no solid food. She said she felt pain at the lower part of the stomach and the limbs and back ached. The urine was thick and high-coloured. The bowels had been loose throughout the week and on Sept. 22nd she had diarrhœa. The patient said labour pains came on on the afternoon of the 23rd, when she had to go to bed and could not get up again. The pregnancy was full term. I diagnosed the case as typhoid fever complicating pregnancy, and Messrs. Crew and Burland, who saw the case with me afterwards, were of the same opinion. I may say that almost from the commencement of the illness till the patient was well on the road to recovery I gave a vaginal douche daily, and for the first week twice a day—for the first two or three days as a precautionary measure in case of septicæmia, and afterwards because I considered the discharges from a patient in such a condition could hardly be normal. I first of all used perchloride of mercury, but finding it too irritating I changed it for boracic lotion. After a few days spots appeared on the abdomen; the tongue was fairly characteristic; diarrhœa was rather severe at times and had to be checked with opium; the stools were those of typhoid fever. The patient complained very much all through the illness of pain in the abdomen, which was worse at one time than another, and as she

was much affected with flatus I put it down to that. The fever ran a fairly normal course, the temperature never going above 104°. I had the patient sponged with cold water when the temperature was at its height, which was much appreciated. Although she took milk well, she was exceedingly weak. I had to give her brandy from the first in large quantities. Even then the pulse showed signs of failure; at one time it could not have been less than 140, at another time it was only just perceptible. I gave her five minims of tincture of digitalis to each dose, which strengthened the pulse and slowed its action.

Remarks.—There was a difficulty in diagnosing this case at once as typhoid fever because of the really great probability of the presence of fever in a puerperal case being of a septic nature. The fact of there being diarrhœa did not help, as it is well known that it is frequent to get severe diarrhœa with septicæmia, and that of a typhoid character. In my own mind I did not consider it was septicæmia from the first, and the presence of spots and other symptoms, with eventually the remittent character of the fever and its decline by lysis, clinched the diagnosis.

Irthlingborough.

CASE OF

PENETRATING WOUND OF ABDOMEN,

WITH PROTRUSION OF INTESTINE AND COMPLETE SEPARATION OF THREE PIECES BY A SUICIDE.

BY CEDRIC B. PRALL, M.R.C.S. ENG., L.R.C.P. LOND,
SURGEON-LIEUTENANT, INDIAN MEDICAL SERVICE.

THE case reported below is, I think, worthy to be brought before the notice of the profession, as it exemplifies how easily one may be deceived by appearances, and, by not in the first place investigating all the circumstances of a case, how entirely its aspect may be changed and one's prognosis considerably altered.

A syce (native groom), a servant of Colonel Handcock C.B., Delhi, attempted to commit suicide in the early part of September of this year by stabbing himself in the abdomen. He was immediately brought to the 36th Sikhs Hospital, Delhi, which was only a few hundred yards distant from his stables. I was in the hospital at the time and saw him at once. He was a strong, healthy-looking man of about thirty years of age, in a semi-comatose condition; there was a jagged wound of about three inches in length through the entire abdominal wall, reaching inferiorly just below the umbilicus. Through this, tightly constricted, several coils of intestine were protruding; in one coil there was an incised wound about three-quarters of an inch in diameter. There was but little hæmorrhage externally. The man being unable to answer questions I did not make any further inquiries, as perhaps I should have done, but assumed the condition described above to be the sum total of the injuries and immediately commenced to attend to him. With antiseptic precautions I united the intestinal wound in the ordinary way with Lembert's sutures. In commencing to return the gut I noticed there was more blood in the peritoneal cavity than could be accounted for by the injuries already noticed. At this moment a fellow-servant of the patient came up, bringing three pieces of intestine, which he stated the suicide had cut off. The truth of this statement was verified by the cantonment magistrate, who had just come up, and subsequently by several other witnesses. There were three distinct pieces of small intestine, each about three inches long, with the mesentery attached, and filled with fæcal matter. This, of course, entirely altered the aspect of the case, and I saw at once that it was hopeless. The man's condition was now extremely bad, so I simply washed out the peritoneal cavity, inserted a drainage tube and closed the abdominal wound; there had been considerable hæmorrhage into the peritoneal cavity. The man died about an hour afterwards. Assistant-surgeon Mul Chand performed the necropsy during my absence, and found the intestine divided as described.

This case is extraordinary on account of the points mentioned at the beginning, but more so on account of the unusual fortitude and determination shown by the man in himself cutting off the three pieces of gut after protrusion and returning what was left outside. It appears that after separating the intestine he himself returned the remainder, and that during his removal to the hospital a different set of coils protruded and thus gave the appearance described in the first place.

36th Sikhs Camp, Kurnal, India.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

LONDON HOSPITAL.

A CASE OF GASTROTOMY AND RETROGRADE DILATATION FOR TRAUMATIC STRICTURE OF THE ŒSOPHAGUS; REMARKS.

(Under the care of Mr. MANSELL MOULLIN.)

THIS is an example of a method of treatment which is applicable in a limited number of cases of simple fibrous stricture of the œsophagus and will probably be new to most of our readers. "As originally proposed and carried out by Loreta, as soon as the stomach has been exposed it is opened, the cardiac orifice is sought for, a dilator guided by the finger is passed through the stomach into the œsophagus and is insinuated into the stricture, and the stricture is at once forcibly dilated. That sufficient has been done is tested by the passage of a bougie from the mouth downwards. The stomach wound is then immediately closed, the abdominal wound sutured, and the operation completed. The other method consists in at first performing gastrotomy—that is, in fixing a piece of the stomach into a wound made in the left epigastric region. The stomach is not usually opened for two or more days, and nothing further is done until a gastric fistula has been established. When this is attained the stricture is attacked through the fistula, gradually dilated by the passage of various devices from above. When dilatation has sufficiently advanced to permit of the further treatment being carried out from above the gastric fistula is allowed heal or is closed by a plastic operation."[1] This operation was first devised and successfully performed by Professor Loreta of Bologna in 1883.

A woman twenty-six years of age was admitted into the London Hospital on June 11th, 1894, suffering from traumatic stricture of the œsophagus. Five weeks before she had swallowed a teaspoonful of a solution of caustic soda. She was seized at once with intense pain all down the throat and within a few minutes was violently sick; but, probably because it was shortly after a meal and therefore the soda was soon diluted, the stomach did not seem to have sustained much harm and there was little collapse. Retching, more or less severe, continued for a week. Then about three weeks after the injury difficulty in swallowing was noted. This continued, rapidly growing worse, until on her admission fluids could only be swallowed in very small quantities and with extreme slowness. A No. 11 œsophageal bougie passed nine inches and a half (measured from the teeth) and then was stopped abruptly. A No. 7 and a No. 5 passed five inches further down, but nothing could be passed through into the stomach and no improvement in deglutition followed. The stricture, therefore, was a long one, beginning above the left bronchus, narrowing slowly for about five inches, and then immediately above the cardiac opening contracting so that nothing but fluid could pass through. Gastrotomy was performed on June 20th with the view of dilating the stricture from below; but, though the position of the cardiac orifice could be made out without much difficulty by the forefinger introduced into the stomach, the opening was too firmly contracted to allow the tip to enter and dilate it. The stomach was accordingly sutured to the anterior abdominal wall and a gastric fistula established, so that the patient (who was greatly emaciated) might be adequately fed and that time might be gained for the adoption of other measures. Two attempts were made to carry a silk thread through by means of small shot after the manner recommended by Hagenbach and adopted by Tietz.[2] In one attempt eight perforated shot (No. 6 size) were used, and in the other only one; but although the patient kept them down for three days and tried by swallowing small

[1] Mr. Kendal Franks, Annals of Surgery, April, 1894, p. 390.
[2] Deutsche Medicinische Wochenschrift, Nos. 16 and 17, 1894.

quantities of fluid to help them through the narrowed portion they did not succeed in entering the stomach. At length, after several attempts, a No. 5 œsophageal catheter was passed as far down the stricture as possible, and a very long and fine catgut bougie manipulated through it into the stomach. The end was promptly caught through the fistula, a stouter catgut bougie was fastened to it and drawn up through the mouth, and then in the same way a piece of long rubber tubing. The stricture yielded very rapidly, and by the fourth day of continuous dilatation admitted rubber tubing the size of a No 23 bougie. As the skin around the orifice had become excoriated an attmept was made to close the gastric fistula at once. Fortunately the stomach was not separated from the wall of the abdomen, for three days later the silk thread attached to the rubber tubing left in the stricture cut through it as it was being withdrawn, and the tubing was left behind. As it was not thought to be advisable to trust to the chance of a piece of thick rubber tubing eight inches long finding its way without inconvenience through the whole length of the intestine the wound was reopened. Two subsequent attempts failed owing to the sutures cutting their way out prematurely, and it was not until the edges, which were very dense and hard from the irritation to which they had been subjected, were freely pared away and united in two strata, which were shifted laterally one upon the other, that the opening closed finally. Meanwhile the patient had gained twenty-three pounds in weight and had learnt to pass a bougie for herself (No. 26) with the view of preventing recontraction.

Remarks by Mr. MOULLIN.—According to Mr. Kendal Franks,[3] gastrotomy, followed by retrograde dilatation, has been performed twenty-one times in all for fibrous stricture of the œsophagus. The present case appears to be the second time the operation has been performed in the United Kingdom, Mr. Kendal Franks' case being the first. Immediate dilatation with separate closure of the gastric and abdominal wounds, the plan adopted in a large proportion of the cases quoted, is of course the ideal method. In this instance it was not tried, because, although the position of the œsophageal opening could be felt, it was not sufficiently distinct to justify an attempt at introducing a dilating instrument, such as Otis's urethrotome. The stomach was not detached from the abdominal wall (fortunately as the case turned out), because it was thought that the patient, who was very nervous, would not persist sufficiently with dilatation afterwards, and that therefore recontraction would be very likely to take place. The anchoring of the stomach did not seem to cause any inconvenience. As soon as dilatation was commenced the stricture, probably because it was of such very recent origin, yielded with the greatest ease. It is encouraging that in not one of the twenty-one cases collected by Mr. Kendal Franks was the result fatal.

ANCOATS HOSPITAL, MANCHESTER.

A CASE OF PORRO'S OPERATION; RECOVERY.

(Under the care of Mr. E. STANMORE BISHOP.)

THE operation known as Porro's operation has been defined as Cæsarean section followed by removal of the uterus at the cervical junction, together with the ovaries and oviducts. There will thus obtain the same reason for the performance of this operation as for the Cæsarean section; in addition, it should be done when it is desirable to render the patient sterile (and it is not possible to effect this for some cause by removal of the ovaries) or when the patient is suffering from malignant disease of the cervix uteri. It is hardly necessary to remind our readers that in the latter instance it is inadvisable to attempt intra-peritoneal treatment of the pedicle on account of the great risk of infection of the peritoneum through the cervical canal which exists in such a case. During last year we gave several instances of operation where it was not possible to effect delivery in the normal manner. Cæsarean section was performed in six cases for contracted pelvis with one death, and once for cancer of the cervix uteri (child saved); the uterus was also opened in two instances for the extraction of a child (there being fibro-myoma of the uterus), once at the fifth and once at the eighth month; the mother died from exhaustion in one case. Porro's operation was successfully performed where a fibro-myoma complicated the pregnancy; when performed for cancer of the cervix, the stump being treated by the intra-peritoneal method, the woman died. Both the children were saved. The need for operation was imperative in the case which follows, the contraction being less than two inches and a half in the conjugate diameter.

A woman aged twenty-eight years, who had been married six years and was in her seventh pregnancy, was sent by Dr. Somerville of Wilmslow with the following history. She had had a miscarriage a few months after marriage. In August, 1889, labour occurred at term, craniotomy being performed; in July, 1890, the same took place; in November, 1891, premature labour was induced at seven months, the child being born dead; in July, 1892, premature labour was again induced at seven months, craniotomy being performed; and in June, 1893, premature labour took place by accident at six months, the child living for a few hours. The patient was dark in complexion, 4 ft. 6 in. in height, and healthy looking. The perineum had been torn through; the vagina was fairly capacious. The following measurements were taken: distance between the iliac crests, 10 in.; between the anterior iliac spines, 9 in.; conjugate diameter, 2½ in. The pelvis was of the flattened, contracted type. The father was living; the mother died after confinement. She had had three brothers and sisters, all of whom died young, she being the eldest. She herself grew very slowly, and had convulsions during dentition. As she and her husband were very anxious for a living child, and she was now in her seventh pregnancy, the dangers, advantages, and the contrary of Sänger's and Porro's operations were explained to her, and she decided to take the risk. The frequency of her previous pregnancies made it probable that Sänger's operation would need to be repeated yearly if undertaken, and she herself expressed a desire to be relieved of this constantly recurring danger, so Porro's operation was decided upon. On May 28th, 1894, she was brought to hospital from Wilmslow by train and cab in the first stage of labour. The membranes were ruptured after her arrival at 6 P.M. At 7.30 P.M., chloroform having been administered by Dr. Dixon and with the assistance of Mr. Montgomery, Dr. Fisher, and Dr. Somerville, a long median incision was made in the abdominal wall, passing up for three inches above the umbilicus and stopping short of the pubes by about two inches. The uterus was rapidly turned out, and a rubber cord was slipped behind and well down over the cervix. A median vertical incision into the uterus proved to be over the placenta, the anterior edge of which passed for one inch and a half over and towards the left side, the main bulk of the placenta being attached to the right side. The edge was easily found and the membranes were torn through at this point. The child was seized by the arm and rapidly delivered; the rubber cord, which could not be tightened before owing to the position of the child's head, was drawn tightly as soon as the head passed upwards, and held by strong forceps. The child was separated, and the uterus, with the placenta *in situ*, firmly controlled by the rubber cord, was left for a while until the large wound above was sutured. This had been from the time of delivery of the uterus filled with a large flat sponge. The peritoneal layer was sewn up by a continuous catgut suture and the serous surfaces of the stump below the cord were also carefully united to it by silkworm gut sutures. The muscular layers were brought together by interrupted silkworm gut sutures and the skin by horsehair. The uterus was now cut away and the surface of the stump trimmed down and cauterised by Paquelin's cautery, covered with dermatol, and surrounded by iodoform gauze. Stump pins were placed to prevent slipping as soon as the rubber cord was tightened. The patient lost very little blood, not so much as at an ordinary labour, and was removed to bed with a normal full pulse. On May 31st there was considerable distension of the abdomen, and it had not disappeared on June 1st, although it was then much less. The face on this day was placid and the pulse was not hard. She had been sick once on May 28th at 9.30 P.M., and twice in the early morning of the 29th, but not since. The catheter had been passed every four hours until 6 P.M. on the 29th, when she passed urine naturally. Flatus had been first passed on May 30th, but the bowels were not moved until June 1st after a glycerine enema, although Seidlitz powders had been given two or three times. They were, however, now freely moved, and a large quantity of flatus also escaped. The child was healthy and thriving. Irrigation of the vagina was commenced. On June 3rd the

[3] Loc. cit.

patient was dressed for the first time (fifth day). Above the stump and in the median line there was a gap in the skin, from which escaped about three drachms of sero-pus. The tissues around were slightly reddened. Gauze packing covered with dermatol was renewed around the stump and into the small cavity from which the discharge came. The patient looked well and was taking soft food satisfactorily. On the 4th the child's cord had come away. The infant seemed to thrive well on milk-and-water. As discharge was showing through the dressings around the stump in the mother these were changed. The breasts had begun to be painful on the 3rd, and were therefore painted with belladonna, and were easy and not distended on the following day. The bowels acted freely. On the 5th, on dressing the wound, the abscess cavity in the wall above the stump appeared to be larger. The stump also was becoming "shreddy." There was no smell. All discharge was carefully wiped away with dry gauze, which was also packed well in and around. On the 7th, the dressings having been changed daily and some sloughs having been removed, the cavity appeared to be still larger, but was granulating healthily. The patient's condition was very good except for slight diarrhœa. On the 10th (thirteenth day) the stump came away, leaving a perfectly healthy cavity with firm walls. In all respects the patient was in a very good condition. On the 12th the child had had some colic, with greenish stools. The milk was stopped and artificial food made with water substituted. Later, on the 17th, one part of milk and two of barley water were given. From the 15th to the 18th, although the patient appeared to be in good condition and the pulse and respiration were normal, the temperature rose regularly from 6 to 10 P.M. up to 101°F. On the 19th about two ounces of pus escaped from the vagina; the pus was found to have been formed in a small abscess in the recto-vaginal septum just below the os uteri. Vaginal irrigation was resorted to and the cavity contracted. On July 1st there was still some irregularity in the temperature. Being normal in the morning and at night, it rose about 6 P.M. to 99·5° or 99°. The patient was walking about and ate and slept well. The external wound was granulating up healthily. As she came from a much purer atmosphere and was anxious to return home, she was sent back under Dr. Somerville's care. On July 20th Dr. Somerville reported that both the mother and child were quite well.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The influence of Heredity in Phthisis.

AN ordinary meeting of this society was held on Dec. 11th, the President, Mr. HUTCHINSON, being in the chair.

Dr. EDWARD SQUIRE read a paper on the Influence of Heredity in Phthisis. Dealing first with the received belief that phthisis was truly hereditary, he suggested that the frequency of the disease in the same family was, in part at any rate, due to conditions of life and environment, and not necessarily to heredity. He did not try to disprove the factor of heredity, but to modify the received impression as to the preponderating influence of this factor. An analysis of 1000 cases of phthisis was made with special reference to the proportion of cases in which apparent heredity was found. In 474 of the cases the total number of children in these families was analysed to find the percentage suffering from this disease amongst the children of phthisical and of non-phthisical parents respectively. The result of the inquiry tended to show that the influence of heredity could not be put higher than 9 per cent. of cases amongst the children of phthisical parents in excess of the cases occurring amongst the children of non-phthisical parents. It was argued that the hereditary influence in phthisis was not a true heredity, but a tendency to suffer from disease—tuberculosis amongst other complaints—which the offspring of phthisical parents had in common with the children of weakly parents from whatever cause this delicacy might arise. Tables dealing with a larger number of cases than any yet published (as far as Dr. Squire had been able to ascertain) had been drawn up from the cases analysed, giving the figures which led him to the opinion expressed above. The main statistical results of the inquiry are shown below. Of 1000 phthisical patients 325 gave a history of phthisis in one or both parents; apparent heredity = 32·5 per cent. Male patients, 604; apparent heredity, 28·97 per cent. Female patients, 396; apparent heredity, 37·87 per cent.

Table showing the Incidence of Phthisis on the Children of Non-phthisical and Phthisical Parents respectively.

474 cases.	Children.		Died in infancy.		Phthisical.	
	Total number.	Proportion to each family.	Total number.	Per cent. of whole.	Total number.	Per cent. of children, excluding infantile deaths.
A. 275 families. Parents non-phthisical... ...	1745	6·34	193	11·06	386	24·87
B. 84 families. Father phthisical	511	6·08	67	13·11	138	31·8
C. 82 families. Mother phthisical	506	6·17	56	11·06	156	34·4
D. 33 families. Both parents phthisical... ...	165	5·0	18	10·9	58	39·45
B, C, D. 199 families. One or both parents phthisical... ...	1182	5·93	141	11·92	351	33·71

The PRESIDENT said that he had taken a great interest in this question, not only in reference to phthisis itself, but also to the surgical diseases connected with the tuberculous diathesis. He asked Dr. Squire what evidence he relied on to prove the existence of phthisis in the family histories of patients; many really phthisical patients never divulged this fact to inquirers, and hence such cases would be missed in the tables. He had made an inquiry into the family history in cases of lupus on much the same lines as carried out in the paper. He had found that in many cases of lupus vulgaris there was an inherited tendency to tuberculosis, and it was remarkable that in lupus erythematosus there was almost always a strong history of tuberculous antecedents. The subject was much complicated by the possibility of the latency of the tubercle bacillus, and there was now accumulating a good deal of positive evidence on this point. He asked Dr. Squire what he meant by direct heredity? Did he mean the direct transmission of the bacillus or spore by means of the sperm or germ from the parent to the fœtus? The investigation of heredity in cutaneous tuberculosis led to the belief in the fact of latency. He had seen two cases in females in which lupus vulgaris had affected the nose when between seventeen and twenty, destroying one ala. It was cured by energetic local treatment, and then the patients married and lived on till about sixty, when each patient again developed tuberculosis in the old place. There was no escape from the belief that in these cases the bacillus of tuberculosis had lain in absolute quietude for many years. The same thing might happen with a pulmonary consumption, which might break out afresh when from any cause the general energy was degraded. The great point that Dr. Squire had made was that the inheritance was not of the disease itself, but of a vulnerable condition of tissue.

Mr. SEDGWICK said the subject of heredity could not be much advanced except by the study of individual cases and their families. As to the first report of the Brompton Hospital, one particularly useful point was brought out in it; it illustrated the well-known preference for sex seen in all hereditary diseases. Thus the disease was transmitted from father to son in 59 per cent. of the cases and from father to daughter in 43 per cent., while from mother to daughter in 56 per cent. and from mother to son in 40 per cent. There was thus seen in each of the two groups a difference of 16 per cent. in favour of sex. The controlling influence of heredity was seen where exemption from tuberculosis occurred. In one instance all the daughters who lived till puberty suffered from phthisis, while all the sons were exempt; in that case the paternal grandmother died from phthisis. Some years back Dr. Greenhow had

dwelt particularly not only on the limitation by sex but also on the effect of asthma in the parents on the incidence of phthisis in the children.

Dr. POLLOCK said that this question of heredity was one of the burning questions of the day. The best statistical tables on this subject were those compiled by Dr. Reginald Thompson, whose results were, however, not in accordance with those in the paper. In discussing this question there was no doubt that the whole question of heredity was before us. In diseases like cancer, rheumatism, gout, and insanity no one doubted but that there was transmission. The results published by the insurance companies of America were interesting, for they went carefully into the family histories of phthisis, and experience had justified them in charging an additional premium in the case of lives with a family history of phthisis. Among the factors of phthisis heredity held the first place, and heredity would transmit not only the disease itself but also the form of it. If one parent alone transmitted phthisis the next generation would suffer earlier than in those in whom there was no parental family history of tubercle. If both parents transmitted the disease the children would suffer still earlier and the disease would probably appear in a more acute form.

Dr. CAUTLEY said the question was whether the actual bacillus was transmitted or whether it was a tendency only to phthisis which was transmitted. The first point could only be settled by examining the fœtus in utero. Bacilli had been found in the testicles of men who suffered from phthisis, or the ovum might be infected in the ovary or in the tube or uterus, or infection might come through the placenta. A calf had been found tuberculous in utero in a tuberculous cow. Bacilli had been demonstrated in cows whose udders were normal, so it was possible that a mother might have bacilli in her milk when the breasts were normal. Phthisis would readily develop in the lungs after measles or bronchitis, when the lymphatic glands were enlarged and formed a suitable soil for the bacillus. In the Austrian prisons the tendency to phthisis increased year by year with the length of the sentence, and this showed the influence of environment.

Dr. HERON said that it was difficult to arrive at a reasonable view of heredity in phthisis. When one saw a case of scarlet fever one recognised that one dealt with an infective disease, and did not ask whether the parents had had scarlet fever. The physique of the individual and of the parents was considered, but not the hereditary tendency. If we were to start an inquiry into scarlet fever from the point of view of heredity we should find a vast amount of evidence in favour of the fact that it too was hereditary; so with measles, chicken-pox, whooping-cough, and the other exanthemata. But no one doubted for one moment that these diseases were hereditary only in that the tendency to them was hereditary. He held that in this sense, but not to a great extent in any other sense, tuberculosis was hereditary. It had been said that there was a peculiar tendency towards disease in the weakling and in the children of the weakling, and this was true; but yet, on the other hand, we could not admit that it was not the strong man or the strong woman who developed phthisis. The incidence of phthisis among strong people was shown by its prevalence at one time in the regiments of Foot Guards, and more recently among women. The State investigation into the condition of health of the nursing orders of Prussia had shown that the nurses who were certified at the commencement of their career to be in robust health died from tuberculosis to the extent of 63 per cent., which showed that the mortality of their calling was worse than the most unhealthy trades. In England, according to the Registrar-General's returns, it killed half of those who died between the ages of fifteen and thirty-five. The great cause of tuberculosis was undoubtedly susceptibility to the poison, and though weaklings were more susceptible than strong people yet it was infection rather than heredity which was to be feared. A promulgation of these views would help certain unfortunate families to get rid of the dread which continually haunted them that through inheritance they ran a constant risk of developing tuberculosis.

Dr. S. WEST said that the question of heredity in phthisis needed reinvestigating in the light of recent knowledge. The disease was a germ disease and the germ must be introduced somehow from without before the disease could develop. The question of determining the method of entry became exceedingly difficult when one considered the possibility of the extraordinary latency of the tubercle bacillus. The most acute forms of phthisis rarely began at the time they were supposed to commence, but usually started from an old caseous tuberculous focus. Tubercle was certainly rarely found in newborn fœtuses, and, on the other hand, an enormous number of phthisical mothers give birth to healthy fœtuses. Whether the spores of tubercle could remain latent or not was a question for further consideration. The incidence of tubercle increased year by year with the growth of the child, and hence it must be assumed that the children acquired the disease. He had been working at this subject and had come to almost the same conclusion as the author—namely, that 12 or 13 per cent. was the utmost value that could be given to heredity.

Dr. J. K. FOWLER doubted the truth of the statement that the offspring of phthisical patients had an equal liability with others to contract the disease. He thought that the experience of life insurance offices disproved this, and that the view the public took upon this matter with relation to marriage was a right one. The question was, What was transmitted? Three cases had been recorded recently of placental tubercle bacilli being found in the fœtal placental villi, while in one case there were nodules in the liver and in a lymphatic gland. He found the theory of latency very difficult to accept. The relation between phthisis and cancer was certainly very remarkable, and a number of facts in connexion with them had been tabulated by Mr. Roger Williams in the Middlesex Hospital Reports for 1888. That a large number of cases arose from infection he was quite convinced.

Dr. FLETCHER LITTLE asked if the family tree or the family house had most to do with the production of phthisis.

Dr. SQUIRE, in reply, said that his definition of phthisis was primary pulmonary tuberculosis. In going over the family histories he was obliged to accept the statements of the patients or of their parents. As to the question of the contagiousness of phthisis he held that it was essentially contagious in that without the bacillus there could be no phthisis, and that the bacillus in each case was acquired from a previously phthisical patient. The inheritance of phthisis was like that of scarlet fever, and families might either have it badly or mildly. The children of phthisical patients contracted the disease earlier because they were exposed to the infection at home. A tuberculous lesion might be limited or localised temporarily, but it was a question whether that should be called "latency." He had been able to collect some half-dozen cases of tuberculosis in the fœtus. The family house was certainly of more importance than the family tree—the surroundings were more dangerous than the pedigree.

MEDICAL SOCIETY OF LONDON.

On the Value of exciting Cellulitis in Certain Urinary Diseases.—Cystic Polypi of Nose.

AN ordinary meeting of this society was held on Dec. 10th, the President, SIR W. B. DALBY, being in the chair.

Mr. HURRY FENWICK read a paper on the Value of exciting Aseptic Cellulitis in the treatment of Chronic Inflammatory Affections of the Urinary Tract. The communication was illustrated by pathological and clinical histories to prove that the inflamed cellular tissues had an important detergent effect on the solid viscera in their immediate vicinity. He suggested that an aseptic cellulitis should be induced in obstinate chronic inflammation by making a small incision, stirring up the cellular tissue with the carefully asepticised finger, and inserting a drainage-tube in order to withdraw the inflammatory products from any obstinate chronic inflammation of viscera such as the kidney, bladder, prostate, and deep urethra. He regarded this proposal as tantamount to the old-fashioned seton or blister, but scientifically and purposively applied.—Mr. MARMADUKE SHEILD said that his impression on hearing the paper was that it was the operation which relieved the symptoms and not the cellulitis which resulted from the operation. Abscesses which burst into the bladder were amongst the most intractable in surgery, unless opened and drained, and this did not appear to have been done in the case cited. The value of counter-irritation in urinary diseases had long been recognised, for iodine or blistering fluid had been applied to the inner side of the thighs and perineum with a view to diminish inflammatory trouble in the bladder, and

counter-irritation over the loins was similarly employed in renal affections.—Dr. A. ROUTH asked if Mr. Fenwick was sure that he did excite cellulitis in these cases. The danger of cellulitis was that it might fix the surrounding organs, or the inflammation might spread beyond the control of the surgeon. The drainage appeared to be the cause of the good which followed in the cases cited.—Mr. FENWICK, in reply, said that when the seton, blister, and poultice were cast away surgeons abandoned a valuable means of relief in diseases of a chronic inflammatory nature, and the procedure he advocated was an attempt to revive this principle in a new fashion. In the case of the abscess bursting into the bladder he admitted that he failed to find the abscess when he cut down upon it, but the contents had already been evacuated into the bladder when the vesical opening into the abscess was dilated.

Mr. W. SPENCER WATSON then related the details of a case of Cystic Nasal Polypi. The paper was introduced by a copious reference to Zuckerkandl's work [1] to show the form and seat of the cystic variety of polypi, with drawings in illustration of two typical cases. Mr. Watson's case was that of a man fifty-one years of age who had been the subject of several violent injuries of the face and nose and had suffered from nasal polypi for many years, leading to almost complete obstruction. They were removed by a snare and by the ring-knife, and were found to consist in great measure of cystic polypi containing blood, some, however, having mucous contents only. The specimens, microscopic slides, and drawings were exhibited.

OBSTETRICAL SOCIETY OF LONDON.

Primary Carcinoma of the Uterus in which Hysterectomy was performed.—Exhibition of Specimens.

A MEETING of this society was held on Dec. 5th, Dr. G. E. HERMAN, President, in the chair.

Dr. LEWERS read the notes of a case of Primary Carcinoma of the Body of the Uterus in a patient forty-four years of age, in which Vaginal Hysterectomy was performed, more than two years having elapsed without recurrence. (He also brought forward a table of five other cases of vaginal hysterectomy for cancer of the body of the uterus.) Vaginal hysterectomy was performed on March 17th, 1892. The patient made a good recovery from the operation, and has remained under Dr. Lewers' observation, so that he has examined her from time to time. She has remained in good health, and there was no sign of recurrence when she was last examined on Nov. 1st, 1894. Attention was directed to the possibility of early cases of cancer of the body being mistaken for uterine fibroids. The shorter duration of the symptoms in cancer of the body will generally, at least, justify further investigation by dilatation of the cervix. As regarded the operation itself, attention was called to the difficulty of getting the uterus out even when it was partially or completely separated, where it was as large as that in the present case. In Case 6 in the table this difficulty was overcome by applying a pair of forceps similar to small midwifery forceps. Dr. Lewers preferred pressure forceps to ligatures for securing the broad ligaments. Ligatures, however, were used in the first two cases in the table and pressure forceps in the remaining cases. For a case such as that here fully recorded to have any scientific value as bearing on the amenability of cancer of the body of the uterus to operative treatment, two conditions were essential—first, the exhibition of the specimen and of sections of it, so that independent observation might corroborate Dr. Lewers' opinion as to the nature of the growth; and secondly, that the patient should come regularly to be examined, as she fortunately had done in this case. The speaker gave reasons for thinking that primary cancer of the body of the uterus might be a more chronic disease than cancer of the cervix. As regarded clinical varieties, he had met with two. In one set of cases the growth was soft, friable, and easily broken down with the finger. In the other set of cases there was merely a hard, irregular, perhaps ulcerated condition found in the endometrium; in these cases nothing could be detached with the finger or curette. A table of the six cases in which Dr. Lewers has performed vaginal hysterectomy for primary cancer of the body of the uterus is appended. There was no mortality from the operation. The subsequent history is briefly indicated in the table.

[1] Normale und Pathologische Anatomie der Nasenhöhle.

Table of Six Cases of Vaginal Hysterectomy for Primary Carcinoma of the Body of the Uterus.

No.	Initial.	Age.	Date of operation.	Place of operation.	Result.	Variety of growth.
1	Mrs. R.	58	March 1st, 1886.	London Hospital.	Recovered.*	Soft.
2	Mrs. W.	42	Nov. 7th, 1889.	London Hospital.	Recovered.†	Soft.
3	Mrs. T.	44	Mar. 17th, 1892.	London Hospital.	Recovered.‡	Soft.
4	Mrs. D.	53	Feb. 1st, 1893.	Private; with Mr. T. S. Stott.	Recovered.§	Hard.
5	Mrs. S.	57	June 8th, 1893.	London Hospital.	Recovered.‖	Hard.
6	Mrs. T.	54	Aug. 21st, 1893.	London Hospital.	Recovered.¶	Soft.

* Well for nearly a year, then recurrence. See Obstetrical Transactions, vol. xxx., p. 218.
† Known to be quite well October, 1893; not seen since. Full record of case, THE LANCET, June 10th, 1893.
‡ Quite well Nov. 1st, 1894. This is the case fully recorded in the present paper.
§ Mr. Stott reports that the patient is quite well.
‖ Quite well on June 22nd, 1894.
¶ Quite well on Oct. 11th, 1894.

Dr. HORROCKS hoped for the time when cancer might be cured by less repulsive means than the knife, although at present this was the best treatment. Dr. Lewers stated that when a sound was passed it invariably caused profuse uterine hæmorrhage where cancer was present in the body. He related a case in which the passage of a sound caused no hæmorrhage worth mentioning, and yet there was extensive malignant growth in the uterine walls. No doubt this was an exceptional case, but it was important to remember. He was disposed to agree with Dr. Lewers that the severity of the pain was not so great on the average in cases of cancer of the body as in cancer of the cervix. He had hitherto used ligatures rather than forceps to secure the broad ligaments, but Dr. Lewers' experience made him feel disposed to try forceps again. He pointed out that the handles got in the way and might be dragged off during manipulations. He asked if Dr. Lewers used any particular form of forceps, as it was difficult to get a pair that would grip equally from heel to tip of the blades. In some cases where the uterus was very large it was necessary to open the abdomen, fix a serre-nœud low down, and remove the part above; then close the abdomen and remove the piece of cervix and the serre-nœud per vaginam.

Dr. AMAND ROUTH had, when he began to do vaginal hysterectomy, used forceps for securing the broad ligaments because they shortened the duration of the operation, thus lessening shock, and because one could tell with more exactness the point up to which the ligament should be divided, which one could not always do with ligatures. He found, however, that the convalescing stage was longer owing to the forceps, when they were removed, leaving a piece of broad ligament which had to slough off, and caused pyrexia &c. in the process. The forceps took up much room, especially where the uterus was large, and they had to be put on obliquely. He would like to know what was Dr. Lewers' practice as regarded removing the ovaries in these cases.

Mr. MALCOLM said he had been asked by Mr. Knowsley Thornton to mention two cases operated on by him—one in July, 1885, and one in July, 1889. Both patients were now quite well, more than nine and five years after the operations. Both were diagnosed by scraping and microscopic examination of the parts removed, and in both cases the diagnosis was verified after removal. One of these cases showed a hard tumour about the size of a hazel-nut, situated in the centre of the fundus of the uterus, close to its mucous membrane, which was destroyed. The growth resembled a scirrhus of the breast, with trabeculæ extending in all directions, but in no case passing beyond the uterine substance. Ligatures were used and no forceps were left in the vagina.

Mr. ALBAN DORAN concluded, after a study of Dr. Lewers' and Professor Kaltenbach's statistics, that vaginal

hysterectomy for cancer was justifiable, and that cancer of the uterus was less malignant than cancer of the breast. Many surgeons, arguing *a priori*, insisted that vaginal hysterectomy was bad surgery, as it was impossible to cut freely beyond the limits of the cancer. In operating for cancer of the breast many authorities adopted very radical measures, excising the pectoralis major muscle and all the fat around the breast as high as the clavicle and far up the axilla, reaching to the vein; yet the cancer recurred in many patients. On the other hand, recurrence was hardly, if at all, more frequent after vaginal hysterectomy, where the knife of necessity passed very close to the limits of the malignant deposit.

The PRESIDENT thought there was no doubt that we had advanced very far in the treatment of cancer since the time of Sir Benjamin Brodie, for it was beyond doubt that the removal of cancer of the uterus did often prolong life. There was a good reason why better results should follow removal of uterine cancer than removal of cancer in other parts; for secondary growths were rarer in the former cases. When the society last discussed this question in 1885 the mortality was shown to be about 28 per cent. In a recent paper by Buecheler [1] there was a table embracing nearly 800 cases by different German operators, and showing an average mortality of about 10 per cent.; while of 159 cases operated on by the late Professor Kaltenbach the mortality was only between 3 and 4 per cent. He (the President) saw no reason why the mortality should not be still further reduced. In Kaltenbach's cases the proportion of those going three years and upwards without recurrence was 25 per cent., and other statistics showed as large a proportion. The question of ligature *versus* forceps was a very important one. By using ligatures the removal of the appendages was possible. This had two advantages. First, there was the possibility of there being pyosalpinx or of extension of cancer along the tubes; these events were not common in cases suitable for operation. Secondly, it was said that where the appendages were left pelvic pain and troublesome moliminal symptoms occurred. He (the President) did not remember that in the cases in which he had removed the uterus and left the appendages there had been much complaint of the kind, but the experience of others would be of value. Kaltenbach made a point of suturing the peritoneum. By this any prolapse of bowel or omentum was prevented. He (the President) had had one case in which a piece of omentum came down after the operation, became adherent in the wound, and sloughed off. The patient did well, but it was an accident which it was desirable to avoid. He could confirm Dr. Lewers' statement that there were cases of cancer of the body of the uterus in which nothing could be detached with the finger or curette; in these cases the diagnosis had to be made without the help of the microscope. Dr. Lewers' classification of cases into hard and soft, although perhaps clinically useful, did not exhaust all the varieties of this disease.

Remarks were made by Drs. Handfield-Jones and Griffith.

Dr. LEWERS said it was true that in the large majority of cases of cancer of the body rather free bleeding occurred, no matter how gently the sound was passed, and also in the majority of cases that pain was an early and marked symptom; exceptionally, as in his case, pain was not conspicuous. At present the only hope for a patient suffering from cancer lies in early diagnosis and free removal, and there could be no question that life was prolonged by the operation in suitable cases. Diagnosis was usually easy when all circumstances of the case were taken into account. He believed that in cancer of the body of the uterus the disease remained for a longer time than in the breast strictly circumscribed, and, therefore, amenable to treatment. Dr. Horrocks had referred to a case where the uterus was too large to remove per vaginam, and where, therefore, the combined abdominal and vaginal operation had been employed. He (Dr. Lewers) believed that, speaking generally, by the time the uterus was too large to remove per vaginam the disease had involved other tissues and the operation was not worth undertaking. His classification was merely a clinical one; the hard form was much the rarer, and might easily be overlooked unless its existence were remembered and the negative results of curetting borne in mind. As regards the details of the operation, he thought it important to bear in mind the difference between the operation in cases of cancer of the body and cases of cancer of the cervix. In the former the patient was frequently old, and there was therefore senile narrowing of the vagina; she was often nulliparous; and the body of the uterus was considerably enlarged. On the other hand, in the latter the body of the uterus was generally small and the vagina capacious. Dr. Lewers had not usually removed the appendages, and had traced no ill effects to leaving them. He thought it was best to trust to forceps for securing the broad ligaments, and that it was dangerous to remove them too soon, not only for fear of hæmorrhage, but owing to the risk of breaking down the adhesions in the neighbourhood of the wound.

The following specimens were shown:—

Dr. ROBERTS: Living child with Congenital Deformities of Limbs.

Mr. W. A. STOTT (Leeds): Ruptured Tubal Gestation.

Dr. HANDFIELD-JONES: Cystic Fibroma of Ovary.

Mr. TARGETT gave a lantern demonstration of Hydatids affecting the Bones of the Pelvis.

[1] Zeitschrift für Geburtshülfe und Gynäkologie, Band xxx.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL MEETING of this society was held on Dec. 7th, Mr. F. SWINFORD EDWARDS, F.R.C.S., Vice-President, being in the chair.

Mr. KEETLEY showed a girl aged seventeen years on whom he had performed Trendelenberg's Operation for Flat-foot ten weeks before. Mr. Keetley also showed a man aged thirty-five years from whose Chest he had extracted a Drainage-tube which had been lost there. A portion of the sixth rib was resected in two successive portions, from before backwards, until the tube could be reached and felt with the finger. Part of the seventh rib was also resected, as the cavity was very large. The case was now doing well. He recommended a similar procedure in such cases unless the tube can at once be extracted through the original sinus.

Mr. PAGET referred to two cases where he had succeeded in extracting a lost tube through the sinus with urethral forceps.

Mr. ALBAN DORAN showed a specimen of Papilloma of Ovary which he had removed from a patient five years previously. The case forms one of the two described in his paper published in this issue of THE LANCET.

Mr. PAGET showed a man suffering from Acromegaly who had previously been exhibited at the Clinical Society. The deformity of the jaws, hands, and legs was well marked. Mr. Paget contrasted the disease with osteitis deformans.—Mr. LUNN considered that many cases described as osteitis deformans were in reality cases of acromegaly.—Mr. LLOYD WILLIAMS remarked that the enlargement of the lower jaw was confined to the symphisis.—Remarks were also made by the PRESIDENT and by Dr. BATTEN.

Mr. BIDWELL showed a boy aged sixteen years on whom he had operated for extensive lupus of the face by means of excision and Thiersch's skin grafting. The operation was done one year ago, and six months later three recurrences occurred in the new skin; these were excised in November and regrafted; the patient now shows the difference between the new skin a few weeks after, and one year after, the grafting; there was very little cicatricial contraction.—Dr. ABRAHAM and Mr. LAKE referred to the treatment of lupus by thyroid feeding, and each speaker cited cases which had shown improvement.—Mr. BIDWELL also showed a patient on whom he had operated for obstinate ingrowing toe-nail; a wedge of skin and subcutaneous fat about a quarter of an inch wide was dissected up from the inner side and top of the great toe and removed; the wound was united by horse-hair sutures, the operation being done under nitrous oxide gas; avulsion had been tried, but the trouble recurred when the nail grew again.—Dr. BENNETT considered that such cases could be cured by insertion of lint impregnated with nitrate of silver under the edge of the nail.

Dr. ABRAHAM showed a case of Tinea Circinata which had resembled rodent ulcer; an irregular raised patch with indurated edges appeared on the left cheek near the eyelid. The microscope revealed abundant mycelium, and the spot had arisen in consequence of a scratch of a nail of a child suffering from alopecia.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Dermoid Cyst.—Perforated Gastric Ulcer.

A MEETING of this society was held on Dec. 1st, Mr. VERRALL, President, being in the chair.

Dr. GORDON DILL showed a child who had been subject to Epileptic Fits. Four months ago the child had a very severe fit and remained unconscious for twelve hours and afterwards was found to be paralysed on the left side. There were now increased deep reflexes on that side and contraction of the hand.—Mr. MORGAN showed a boy aged three years, from whose axilla he had removed a Round-celled Sarcoma. It had only been noticed by the parents for three weeks prior to operation, but it was found impossible to remove it entirely.—Mr. MORGAN also showed a boy aged eight years, in whom there had been for a year a gradually increasing difficulty in moving the right arm. There was a history of a blow by a schoolfellow with his fist. A mass was to be felt in the upper part of the axilla, feeling hard and fibrous. The skin was adherent over it and puckered, and the growth seemed to be firmly adherent to the deep parts. There was also fæcal vomiting. The abdomen was opened, and it was found possible to reduce an intussusception, while the body which had projected from the anus was still left in the lumen of the bowel. This was therefore opened, and in the interior there was found a large piece of bowel adherent by a large pedicle. This was undoubtedly a previous intussusception which had nearly been spontaneously separated, but which, being dragged down by peristalsis, had caused a second intussusception. The separated portion was removed and anastomosis effected by a Murphy's button. The child died on the next day, apparently from leakage having occurred through a too sharp edge of the button.

Mr. SANDERSON read notes and exhibited specimens from a case of Dermoid Cyst which had suppurated and formed a communication with the bladder. The patient was admitted into the Lying-in Hospital, Brighton, on Aug. 25th, 1894, complaining of frequent painful and involuntary micturition. She was emaciated and anæmic. The urine contained one-fourth of fetid pus, the temperature was 100° F. and the uterus horizontally placed in the pelvis. There was an ill-defined soft mass, apparently thickened bladder, above and in front of the uterus. Under ether the urethra was dilated and the bladder explored digitally. Strands of hair coated with calcareous deposit were removed from the bladder, and an opening the size of a florin was found above the trigone. Attached to the lower margin of the opening was a small pedunculated tumour, which was twisted off. The opening led into a thickened cavity the size of a Tangerine orange. The patient was discharged on Oct. 31st with perfect control of urine, no dysuria, and the temperature normal; but there was still a trace of pus in the urine. The tumour was submitted to the Pathological Committee, who reported it to be a sequestration dermoid cyst.

Mr. KEMPE showed a patient with Hypertrophy of the Right Thumb and Forefinger. There appeared to have been some abnormality in size from birth; but the difference became more marked after an accident.

Mr. JOWERS read notes of a case of Perforated Gastric Ulcer which he had successfully treated by laparotomy and excision of the ulcer.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Complete Anuria.—Anæsthetics.—Exhibition of Cases and Specimens.

A MEETING of this society was held on Friday, Nov. 30th, Dr. T. CHURTON being in the chair.

Dr. BAMPTON (Ilkley) read notes of a case of Complete Anuria occurring in a man aged sixty-four years, lasting ten days without convulsions and without any obstruction in the urinary passages. The post-mortem examination showed granular kidney only. The bladder was found empty ten days before death, and no urine was secreted during the remainder of the patient's life. There had been slight œdema of the ankles for eight weeks, but until quite the end, when the patient became slightly delirious and ultimately unconscious, he did not appear to be very ill, nor did he complain of feeling so. Sir Dyce Duckworth had recorded a similar case where the suppression lasted eight days.—Dr. Bampton discussed three theories to account for the suppression: (1) "choked filter" from accumulation of excrementitious bodies; (2) paralysis of renal epithelium from an alkaloid poison; and (3) stopcock action of renal artery from irritation produced by retained urinary constituents. He considered that potassium salts were the probable poisons mainly concerned.—In the discussion Mr. JESSOP stated that hitherto he had always held that complete and long-standing suppression always meant mechanical obstruction if unassociated with ordinary uræmic symptoms. The narrator of the case made him doubt the propriety of his resolution, formed some time ago, always to operate in such cases. He mentioned the case of a man, now alive and well, who had twice had complete anuria for ten days, and who suddenly recovered on both occasions.—Drs. Major, Braithwaite, Chadwick, and Wardrop Griffith, Mr. Littlewood, and Mr. Knaggs took part in the discussion.

Mr. RUMBOLL, coming from the Edinburgh school, confessed to having started with a strong prejudice in favour of chloroform as being the anæsthetic *par excellence*, having seen no fatality with it either during his student course or his practice in Scotland. Since coming to England, however, he had seen cause to alter his opinion as to its safety, having in three cases narrowly escaped disaster. This, together with the numbers of fatal chloroform cases recorded from time to time, led him to turn his attention to ether. During the present year there had been no fewer than twenty-seven deaths recorded under chloroform; but whilst ether appeared to be safer it had disadvantages of its own, especially for the patient. He had known patients refuse to undergo an operation solely from their extreme dread of taking ether. It had a tendency to produce a feeling of suffocation, its smell was most disagreeable, and in some cases it produced struggling. These drawbacks Mr. Rumboll found in practice to be obviated by preceding the administration of ether by that of nitrous oxide gas, which put the patient under quickly and easily. To ensure success in giving nitrous oxide gas he advised attention to the following details. The face-piece should fit accurately, so as to exclude air, which, if inhaled, intoxicated the patient, causing him to shout and struggle. The nitrous oxide gas bag should only be half filled at first, so as not to rush into the patient suddenly and frighten him. The administrator should keep the anæsthetic turned on and gently running into the bag during administration. When the patient was nearly under the administrator should turn the handle of the stopcock so that the patient could breathe to and fro into the bag; this gave a longer period of anæsthesia. Though he became livid and his pupils grew larger, this need cause no alarm, as the colour immediately became natural on removing the face-piece. The anæsthetic should be pushed till the breathing was stertorous and there was twitching at the extremities. For all minor operations he considered nitrous oxide gas the best, because only perfectly safe, anæsthetic. In giving nitrous oxide gas and ether in two separate inhalers there was the difficulty of the patient recovering consciousness between. This led Mr. Rumboll to try to construct a combined nitrous oxide gas and ether inhaler, which should, if possible, have all the advantages of Clover's inhaler and none of its disadvantages. This inhaler was then shown to the meeting, the following advantages being pointed out: (1) its safety, anæsthesia being produced in a shorter time than by any other inhaler; (2) its great portability; (3) the body being of glass the quantity used could be seen and the last drop used; (4) it is so accurately made that the patient smelt no trace of ether; and (5) it could also be used as a nitrous oxide gas inhaler.—Mr. J. MAIN NICOL commented on Mr. Rumboll's apparatus, thinking the administration of nitrous oxide gas from a simple apparatus, followed by ether in the ordinary Clover's inhaler, quite as efficient, and preferable because it avoided the bag used for nitrous oxide gas acquiring an ethereal odour and consequently largely neutralising the value of nitrous oxide gas as a preliminary to ether. He would like to modify Mr. Rumboll's statement that it was essential to exclude air during the administration of the nitrous oxide gas and to say that its admission—or, better still, the admission of oxygen in graduated quantity—not only was not harmful but prolonged the anæsthesia, in addition to its abolishing cyanosis and jactitation. By the administration of nitrous oxide gas with a certain proportion of oxygen a perfectly

tranquil anæsthesia might be obtained and maintained for any small operations occupying from three to ten minutes, such as tenotomies, circumcisions, &c., without the after-effects of ether and with a very rapid return to consciousness. The paper was discussed by Mr. Croft, Dr. Bronner, Dr. Bampton, Dr. Johnston, Mr. Littlewood, and Dr. Griffith.

The following cases, pathological specimens, &c. were shown:—

Mr. LAWFORD KNAGGS and Dr. TREVELYAN: Case of Organic Nervous Disease, with—(1) Ocular Paralysis; (2) Concentric Limitation of Visual Fields; and (3) Monocular Triplopia (astigmatism).

Dr. TREVELYAN: Case of Locomotor Ataxia, with Perforating Ulcers.

Mr. LITTLEWOOD: Kidney removed by Lumbar Nephrectomy (specimen).

Dr. GORDON SHARP: Lymphatic Glands from Hodgkin's Disease, with photographs and micro-photographs.

Mr. TACEY and Dr. CLARKE (Doncaster): Aneurysm of Aorta. (Death from rupture into pericardium).

Mr. W. A. STOTT: Ruptured Tubal Pregnancy (specimen).

MANCHESTER MEDICAL SOCIETY.

Anyklosis of the Jaw.—Appendicular Abscess.—Otitic Pyæmia.—Traumatic Tetanus.—Diphtheria.

A MEETING of this society was held on Wednesday, Dec. 5th, the President, Dr. DIXON MANN, being in the chair.

Mr. WALTER WHITEHEAD showed a female aged eighteen years upon whom he had successfully operated for Ankylosis of the Jaw. The deformity was supposed to have originated at the age of five years, and was attributed to an arthritis following some fever. Before operating every justifiable attempt under chloroform had been made to break down the adhesions. The operation consisted in removing a wedge-shaped portion of bone from each side of the maxilla. Mr. Whitehead observed that from his experience passive movements were more easily persevered in by the patient after this operation than when the condyles were excised.

Mr. E. STANMORE BISHOP mentioned a case of Appendicular Abscess with Perforation, treated, in conjunction with Dr. Wilkinson, by almost immediate operation and drainage, terminating in recovery.

Dr. MILLIGAN and Dr. C. W. BROWN showed a patient, a man aged twenty-five years, upon whom the operation of tying the internal jugular vein and clearing out the lateral sinus had been performed for Otitic Pyæmia. The patient had for many years suffered from purulent disease of the right middle ear, following an attack of scarlet fever. Acute symptoms developed suddenly. Pain in and around the ear became severe. The discharge ceased and the temperature became febrile. This was soon followed by rigors, vomiting, and severe prostration. The tissues between the mastoid process and the angle of the jaw became puffy and a certain degree of fulness was felt along the course of the internal jugular vein. Right-sided optic neuritis was also present. The internal jugular vein was tied, and the lateral sinus, which contained a large thrombus and a quantity of puriform fluid, cleared out and flushed with bichloride solution. The mastoid antrum was exposed, granulation tissue scraped away, and a thorough toilet of the middle ear performed. Rapid recovery followed. Dr. Milligan made some remarks upon the occurrence of sinus thrombosis secondary to purulent middle-ear disease, with especial reference to the sinuses usually involved, the symptoms produced, and the nature and scope of operative interference in such cases.

Mr. JORDAN mentioned the following case of Traumatic Tetanus. A girl aged six years and a half accidentally received a small punctured wound over the left mastoid process, causing shock and insensibility with bleeding from the left meatus, which lasted about twenty-four hours, and paralysis of the left side of the face, which continued for two days. Thirty hours after the accident the muscles of the left side and back of the neck were contracted and the head was so much retracted that the occiput rested on the back of the shoulders almost as if the head was dislocated. Nodding movement was impossible; rotation was quite free. Seven days after the accident the patient could retain the head in the upright posture for a moment after it was raised for her. From this time she gradually recovered.

Mr. JORDAN also read a paper on the Treatment of Mild Forms of Diphtheria where no Membrane forms. He found hourly painting with a glycerine saturated solution of boracic acid beneficial.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.

A Case of Intussusception.—Aneurysm of the Anterior Communicating Artery.—Exhibition of Specimens.—Swallowing a Pencil-holder, which passed into the Right Bronchus.—Puerperal Conditions and Uterine Drainage.

A MEETING of this society was held on Tuesday, Dec. 4th Dr. SAMUEL JOHNSTON, President, being in the chair.

Dr. H. BRONNER described a case of Intussusception which had recently been under his care and which had ended fatally. The patient, a girl aged eighteen years, was anæmic and complained of vomiting, abdominal pain, and constipation. A few weeks before death a cylindrical tumour was noticed in the left iliac region. Surgical interference was refused. There was no meteorism, and no blood or mucus was passed from the bowel. Post mortem an intussusception of the upper part of the jejunum was found.

Dr. CHAPMAN exhibited a specimen of an Aneurysm of the Anterior Communicating Artery (of the circle of Willis) and read notes on the case. The patient, a man, was suddenly attacked with loss of consciousness, passing into coma, the case ending fatally in twenty-two hours. On removing the brain there was a surface hæmorrhage on both sides and a ruptured aneurysm was found on the anterior communicating artery. The vessels were atheromatous. No history of syphilis or of endocarditis was obtained.

Mr. HORROCKS showed a specimen of Abscess of the Liver due to Gall-stones impacted in the Common Duct. The patient was too collapsed when seen to allow of any surgical interference.

Dr. T. C. DENBY read notes of a case where a Pencil-holder had been Swallowed by a boy aged ten years and had passed into the Right Bronchus. Thirty-six hours afterwards the pencil-holder was coughed up and the boy made a good recovery.

Mr. APPLEYARD read a communication on Puerperal Conditions and Uterine Drainage, advocating continuous drainage of the uterus in certain cases after labour, when there were fever and an absence of the lochia. Frequent syringing with antiseptics was also to be employed.

WIGAN MEDICAL SOCIETY.

Exhibition of Cases.—Uterine Displacements.

A MEETING of this society was held on Thursday, Sept. 13th, in the Board-room of the Royal Albert Edward Infirmary, the President, Mr. E. H. MONKS, jun., being in the chair.

Mr. MITCHELL ROOCROFT showed a patient from whom he had removed the arm below the shoulder for Elephantiasis after injury some years before; he also exhibited the specimen and a photograph of the case.

Mr. BERRY showed some clinical cases in the wards.

Dr. DONALD read a paper on the Operative Treatment of Uterine Displacements. A discussion followed, in which Mr. Graham, Dr. Benson, Mr. France, and the President took part. A vote of thanks was accorded to Dr. Donald for his valuable paper.—Dr. Donald replied.

Use of Forceps in Midwifery Practice.—Hydrophobia.

An ordinary meeting of the society was held on Thursday, Dec. 6th, the President, Mr. E. H. MONKS, jun., presiding.

Mr. BERRY read a paper on a More Frequent Use of the Forceps in Midwifery Practice.—An interesting discussion followed, in which Mr. Cowan, Dr. Rees, Mr. Blair, Mr. Part, and the President took part, the opinion of the meeting being in favour of forceps being used in cases in which they are indicated, and not to save the time of the practitioner.

Mr. MITCHELL ROOCROFT then read notes of a case of Hydrophobia which he had recently treated in the Royal Albert Edward Infirmary, and which appeared in THE LANCET

of Dec. 8th.—A discussion followed, in which Mr. Brady, Mr. Lowe, Dr. R. P. White, Mr. Rees, the President, and the Hon. Secretary took part.—A cordial vote of thanks was accorded to Mr. Roocroft.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Notes on a Case of Acromegaly.—Case of Typhoid Fever, with Rare and Rapidly Fatal Complication.—Typhoid Ulcers.

A MEETING of this section was held on Nov. 30th, Dr. SCOTT, President, being in the chair.

Dr. A. H. BENSON read notes on a case of Acromegaly with Ocular Complications, and exhibited the patient.—Dr. BAKER exhibited a cast of the patient's mouth.—Mr. SWANZY expressed the gratitude the section owed to Dr. Benson for the exhibition of this most interesting case. He concurred as to the diagnosis and treatment of the disease.

Dr. A. R. PARSONS read a paper on a case of Typhoid Fever, with rare and rapidly fatal complications, and exhibited a portion of the small intestine, the spleen, and the larynx of the patient.—Dr. DAWSON said that in his experience laryngeal complications in typhoid fever were not very rare. There was often a certain amount of sore throat. Ulcerations of two different types had been regarded as probable—one a diphtheritic ulceration, and the other, although this had not been conclusively proved, due to the typhoid bacillus. Its existence in the blood and its power of causing ulceration in the intestine were evident, and it was easy to imagine that it could cause ulceration elsewhere. The present case he did not think to be one of diphtheritic ulceration, judging from the sections of tissue removed from the larynx.—Dr. J. W. MOORE, having inspected the ulcers present in the small intestine, said that, as far as he could judge, they were ulcers of typhoid fever, from which the sloughs had come away. He said he considered that sometimes portions of the system other than the intestines—as, for instance, the lungs—bore the brunt of the disease.—Mr. CROLY, who had performed tracheotomy on the patients, said that never before in his experience had he met with a case of typhoid fever presenting this severe laryngeal complication, and, moreover, he had never been troubled with emphysema as a sequel to any tracheotomy he had previously done. He described the operation.—Dr. PARSONS replied.

Dr. BEWLEY exhibited some Typhoid Ulcers, and shortly described the case from which they were taken.

Reviews and Notices of Books.

The Senile Heart: its Symptoms, Sequelæ, and Treatment. By GEORGE WILLIAM BALFOUR, M.D. St. And., LL.D., F.R.C.P., F.R.S. Edin. London: A. and C. Black. 1894.

THOSE who are already acquainted with Dr. Balfour's writings or who may recall his clinical lectures on Diseases of the Heart will be prepared to find in this work a clinical study, clearly and boldly sketched, at once rational and thoughtful, such as might be expected from a physician of long experience and an authority in cardiac pathology. Nor will they be disappointed, for they cannot fail to rise from the perusal of this monograph without a sense of the thorough mastery that the author has of his subject, nor to be impressed by his scientific knowledge and clinical acumen, as well as his literary lucidity, which adds to the interest and charm of a most instructive and valuable book.

The keynote of the volume is struck in the introductory chapters, which show that the regressive changes of advancing age are in harmony with the ordered laws of physiology, that age or senility is measured not by years but by the extent and degree of such tissue change, and that the cardio-vascular system shares to a notable—nay, as regards the arterial system even a disproportionate—extent in such change. We have seldom read a more fascinating description of senility than that which is here presented; and, dealing with a topic of universal interest, it is capable of being confirmed by the individual experience of all who have passed the grand climacteric. That the cardiac muscle should retain so much of its pristine vigour when other functions and organs are failing is one of those abiding physiological marvels which testify to the recuperative power inherent in an organ that must perforce continue to be exercised under conditions of increasing difficulty. The statement that the heart is always hypertrophied in old age seems to afford an explanation of the paradox, whilst at the same time it points the way to the dangers which confront it. For this hypertrophy cannot but be limited, and it too often passes into myocardial enfeeblement with dilatation—the latter perhaps evoked by some slight extra strain thrown upon an organ working up to its full capacity. The physician has to deal with those cases when the limit of physiological action is overstepped, and the senile heart becomes essentially a pathological condition. The aim and purport of Dr. Balfour's monograph are to testify to the value of appropriate treatment in restoring the working capacity to a heart that has failed by reason of senile change, and his experiences are highly encouraging. Amongst the symptoms and signs of this senile failure he describes "præcordial anxiety," cardiac irregularity and intermission, the latter especially provocative of further increasing the dilatation that is already present, breathlessness, palpitation, "tremor cordis," bradycardia, tachycardia, and angina pectoris. Each of these symptoms is detailed with full scientific explanation and many an apt illustration from cases coming under his own ken. We would fain have referred to more than one of these topics to show the satisfactory manner in which they are dealt with, and the practical lessons that the author deduces from them. Suffice it to say that he points out how amongst the earliest indications of dilatation due to the myocardial weakening are the changes in the heart sounds, and the gradual development of a systolic bruit, not from enlargement of the auriculo-ventricular orifice, but more probably from the altered relation of the chordæ tendineæ preventing their effective action in maintaining the closure of the valve. He dispels the notion that bradycardia is the result of fatty degeneration, and gives instances of its association with syncopal and epileptiform attacks, as well as with attacks of "delirium cordis." In his description of angina pectoris—due, as he thinks, almost invariably to cardiac ischæmia—he places in a clear light the various exciting causes and the varied types of manifestation of this grave symptom. Highly interesting, too, are the chapters on the Concomitants and Sequelæ of the Senile Heart, which comprise a description of "gout" in its widest sense, with many shrewd and valuable hints upon its causation and relationships. The sections upon Treatment are, as may be expected, not the least valuable portion of the book; and the author's appreciation of digitalis—the administration of which to the aged should, he says, be always combined with a vascular stimulant—is very high. He also speaks highly of the value of strychnine and of arsenic; but we cannot find any mention of caffein, so much in favour with Continental physicians in myocardial failure. Dr. Balfour also gives excellent advice upon the dietary and general management of the subjects of the senile heart. In conclusion, we can only reiterate the expression of the pleasure which this excellent and well-written book has given us, and can commend it confidently to practitioners, who must be daily brought into contact with the conditions that it portrays.

A Text-book of Organic Chemistry. By A. BERNTHSEN, Ph.D. Translated by GEORGE MCGOWAN, Ph.D. Second English Edition, revised and extended by the Author and Translator. London: Blackie and Son, Limited, 1894.

WE are glad to find that a second English edition by Dr. McGowan of Professor Bernthsen's now well-known text-book

has been called for. With the old edition before us, a review of which was published in THE LANCET of April 19th, 1890, we see at once that the plan of treatment which we then approved has not been departed from, while "various chapters have been recast in accordance with our present knowledge of the subject." Thus we find as examples of subjects which have received comparatively recent experimental study, the prosecution of which has added so marvellously to our knowledge of the constitution and structure of organic compounds, sections dealing with Stereo-chemical Isomerism, Aldoximes and Ketoximes, Carbohydrates, Special Benzene Formulæ, Aromatic Compounds of Phosphorus &c.; Hydrogenised Phthalic Acid; Dyes of the Diphenylene-, Methane Oxide-, Phenazine-, Oxazine-, and Thiazine-Groups; Alkaloids, especially the Derivatives of Tropine; and, finally, the Terpenes and Camphors (Wallach). It only remains for us to endorse what we said before, that it is an excellent and admirably translated treatise, lucid in style and judiciously arranged; and the issue of a second edition enables us to add that it is also reliable in affording a succinct and intelligible account of the recent important developments of modern research. In spite of this valuable extension and of its generally useful and broad scope it is by no means a cumbersome volume, and on this account it will be welcomed by many students.

LIBRARY TABLE.

The Sale of Food and Drugs Act, 1879 and 1889, with the Margarine Act, 1887, and the Fertilisers and Feeding Stuffs Act, 1893. Second Edition. By Sir WILLIAM J. BELL, M.D., and H. S. SCRIVENER, B.A. Oxon. London: Shaw and Sons. 1894.—To paraphrase a very common remark of reviewers, this little book is distinctly indispensable to those engaged in the working of the Sale of Food and Drugs Acts. It contains notes and cases, and also practical observations, bearing upon legal and chemical questions which have arisen in the working of these Acts. The last few years have been characterised by some remarkable legal pronouncements, e.g., as to the use of alum in baking-powders and pyroligneous acid in vinegar—while since the first edition of the work was published, over eight years ago, the Margarine Act, 1887, and the Fertilisers and Feeding Stuffs Act, 1893, have been passed. The book may be justly regarded, therefore, as the public analyst's legal *vade mecum*. It will probably need revision, however, when the conclusions of the Select Committee, which will meet again next session, on "food products adulteration" are made known, for it is probable that amendments relating to food adulteration may be made by Parliament on the recommendation of this Committee.

Outlines of Biology. By P. CHALMERS MITCHELL, M.A., F.Z.S., Lecturer on Biology at the Charing-cross Hospital Medical School. With 74 Illustrations. pp. 297. London: Methuen and Co. 1894.—This little volume has been written with the object of providing a text-book for the student containing sufficient information to enable him to prepare himself and qualify for the examination in elementary biology now conducted by the Conjoint Examining Board of the Royal Colleges of Physicians and of Surgeons. It is divided into eighteen short chapters, each of which is complete in itself and deals with some one or two types of plants or animals. The plants taken in succession are protococcus and spirogyra botrydium and the yeast plant; and there is a general account of the higher forms. The differences between plants and animals are given at some length, with a section on cell structure and cell division. The animal types selected are the hydra, the earthworm, the dog-fish, and the frog, and a chapter is devoted to embryology. In such a work there is hardly any scope for originality, and clearness and accuracy are of more importance. The student is directed as to the mode in which his dissection should be practised. The earthworm and the dog-fish, both very accessible types, are fully and well described, and the drawings, which are for the most part original, are sufficiently clear. It may be recommended as the work of a painstaking and intelligent teacher.

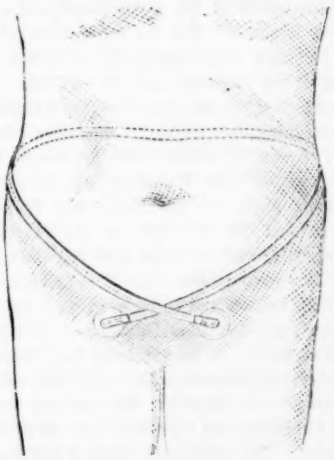
Coffee. By JAMES LEE LODGE. London: Simpkin, Marshall, and Co. 1894.—This interesting little pamphlet opens with an account of the early history of coffee, the growth and cultivation of the plant, and the roasting of the berry. The author recommends a "medium roast," because very pale berries yield a flavourless beverage, and when they are roasted very dark the coffee loses "that delicate acidity which, in the opinion of some, makes it so delicious." He advises it to be infused in an ordinary jug for six or seven minutes with water actually boiling when added. Coffee-drinkers will find much information in these pages.

Messrs. FAULKNER send us a large assortment of tasteful Christmas and New Year's cards, humorous, sentimental, and devotional, in variety sufficient to please the most fastidious. They are all more or less ornate in folding or outline, embossed in various patterns, and gilt-edged. They also publish a profusion of tastefully illustrated calendars, in many of which spaces have been reserved for the printing of names and addresses &c.

New Inventions.

A TRUSS FOR CERTAIN FORMS OF DOUBLE HERNIA.

THE truss here depicted is made in one continuous spring sufficiently long to encircle the body and permit the two ends to cross each other in front. By this



arrangement each pad when applied presses backwards and inwards, a most undoubted advantage in certain cases. The pads have been made large, so that the pressure may be diffused over a large surface and the patient may not be rendered uncomfortable by any painful concentration upon one spot. The instrument is easy of application, a fact that elderly patients will be ready to appreciate. It has been constructed for me by Messrs. Salmon and Ody, 292, Strand, W.C. H. A. RAWLINS, L.R.C.P. Edin., M.R.C.S.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the December meeting of the Faculty, held on Monday, the 3rd inst., George Balfour Marshall, M.D., Woodside-crescent, Glasgow, and Charles J. Renshaw, M.D., Ashton-upon-Mersey, having passed the necessary examination, were admitted Fellows of the Faculty.

THE LANCET.

LONDON: SATURDAY, DECEMBER 15, 1894.

DIFFERENT critics will pronounce different verdicts on the work accomplished, both as respects character and amount, at the recent meeting of the Medical Council. It would be easy to be censorious. When a body so large and so complicated in its constitution and interests has to decide in seven or eight days questions affecting the status of registered practitioners, the impartiality and efficiency of examining boards, the question of science teaching in ordinary schools, the adequacy of the preliminary examination of foreign and colonial universities, the action of bodies of high professional standing like the Obstetrical Society, the liberty and the honour of the Press, and the sufficiency of the Medical Acts, it would be strange if it were found faultless at all points. We have been able to supply our readers with full reports on all the principal topics of discussion. We cannot but think that on dispassionate consideration of the whole work of the meeting it has been fairly well done, and the judgments reached have been, on the whole, just.

The chief work of the Council must always be the supervision of the education of the profession and of the examining boards of the corporations and universities by which it is tested. For the information which is to guide the judgment of the Council it is indebted chiefly to the reports of its inspector and its visitors. We have already commented on the report on the examinations of the Conjoint Board for England. The only other examination the report of which calls for much notice at present is that of the University of Glasgow. Some remarks were made by the visitor and inspector (Dr. MACALISTER and Dr. DUFFEY) on the examination in medicine which seemed to imply that there was a chance of a candidate passing when one of their examiners happened to be a teacher and to have personal knowledge of the candidate's previous character and work, which he would not otherwise have. It so happened that the examining teacher specially concerned was Dr. GAIRDNER, who, happily, is a member of the Council. The criticism brought Dr. GAIRDNER to his feet, and led to the most interesting speech of the session. He disclaimed entirely any partiality or favour, of which all who heard him or who know him will entirely acquit him. But he declared that the difference between the candidate's written performance and his oral examination was such as in the whole course of his long experience he had never seen before. Dr. MACALISTER was quite satisfied with Dr. GAIRDNER'S explanations, and so the matter ended. We scarcely regret this incident, as it gave rise to so spirited a defence by Dr. GAIRDNER, and, moreover, raises two questions of great interest—the place of a teacher in examinations and the advantage of a written as well as an oral examination. We have not space here to enlarge on these points, but they cannot be overlooked. Whatever our opinions, we may congratulate the candidate on having had an examiner who could so ably defend both him and himself. The profession will share the surprise expressed in the debate that the University of Glasgow, surrounded by 600,000 people, does not exact personal attendance on "more than three cases of labour from the candidates for its degrees." This is a defect that almost deserves representation to the Privy Council; but the Scottish universities, otherwise exemplary in many of their regulations, support each other in this monstrously inadequate requirement. The report on the examinations of the University of Aberdeen call for little notice, and is, with a few exceptions, creditable to the university. The reports on the Final Examinations are now complete. They constitute the basis of all the Council's knowledge on the subject, and they cost a large sum of money. They are thoroughly impartial and careful in their detail. It may now be expected that they will receive from the Examination Committee very minute attention. There has naturally been some hesitation on the part of that committee in drawing general conclusions from the visitations until all the bodies had been visited and the reports on them could be considered together. Now they have splendid material for comparison and for conclusions, and it will be disappointing if something is not gained in the way of general improvement in methods, that shall equalise the severity of examinations in different divisions of the kingdom and increase the confidence of candidates and of the profession in the soundness and fairness of the tests applied. It is not too much to hope that the final report of Sir DYCE DUCKWORTH and his colleagues on the final examinations will be the chief interest of the meeting of the Council in May next.

Another subject of much importance engaged the attention of the Council—the continued granting by the Obstetrical Society of large and showy documents to midwives purporting to be "diplomas." The Council has been naturally anxious to correct this action of the Obstetrical Society and other bodies in as considerate a way as possible; but it does seem impossible for it, administering Acts and publishing a Register which contemplate complete qualification in those receiving "diplomas," to regard certificates of a few months' training, issued by a body without Parliamentary sanction, as of the nature of a "diploma." Even now, after repeated remonstrances, it has not ventured further than to resolve that from this date the issue of such "colourable imitations" of diplomas will be regarded as "infamous conduct in a professional respect," and that, in the opinion of the Council, the form of certificate before the society at its late meeting, bearing date July 20th, 1894 is a document coming within the purview of the resolution. It will be interesting to see how the society meets the representation of the Council, and whether it will persist in issuing its "diplomas." The resolution of the Council undoubtedly raises points of law upon which opinions may differ. But there should be no difficulty in settling these points without any serious collision.

THE report of the Pharmacopœia Committee of the General Medical Council does not ordinarily afford much scope for comment. It mostly deals with simple matters of

fact connected with the sale of the book and of the addendum, and it might almost be regarded as the balance-sheet of a going concern. Our readers will, therefore, have seen with surprise that when the report was brought before the Council it was immediately greeted by a motion for recommittal. The cause for this treatment can be readily understood when the terms of the original report are considered. It consisted of five paragraphs, three long and two short. The first gave satisfactory details of the sale of the Pharmacopœia and Addendum, and its figures indicated the immediate need of a reprint or of a new edition. The second paragraph showed what steps had been taken to extend the operation of a new Pharmacopœia to India and the colonies, and how it was proposed to obtain the coöperation of the medical authorities in Great Britain and Ireland. The third paragraph in like manner expressed a desire to have the assistance of a Pharmaceutical Pharmacopœia Committee, and so far there was really no contentious material in the report. The concluding paragraphs, however, which recommended and nominated a consultative subcommittee and fixed the remuneration to be awarded to a single editor, Professor ATTFIELD, left room for wide differences of opinion, which were explained in no uncertain way at the meeting on Dec. 4th, and ultimately led to the recommittal of the report.

Some members of the Council complained that the report was at variance with an understanding arrived at when the committee met in May, and regretted that alterations should have been made when some of the Pharmacopœia Committee were necessarily engaged elsewhere. The course of the discussion is deeply interesting, though the whole difficulty seems mainly to have arisen from an unfortunate misunderstanding connected with the terms "pharmacology" and "therapeutics," which so often serve as red rags. It is an unfortunate fact that directly these terms are introduced into a discussion, whether intentionally or inadvertently, the atmosphere becomes thunderous and opposition is aroused. Dr. BATTY TUKE, Professor LEECH, and others explained their intentions in a way which appeared to be sufficiently reasonable. They pleaded for the association with the editor of experts in pharmacology and therapeutics, who, dealing with full knowledge of their own subjects, would prevent the new volume from becoming a pure pharmacists' Pharmacopœia. It was repeatedly stated at this meeting that efforts in the new directions desired were not only impossible, but unlawful; indeed, Mr. BRUDENELL CARTER gave an extract from the law under which the Pharmacopœia was constructed, but overlooked a clause which would have deprived his argument of its apparent force. The full text is printed as follows in the preface to the British Pharmacopœia of 1867: "That the General Council shall cause to be published under their direction a book containing a list of medicines and compounds, and the manner of preparing them, together with the true weights and measures by which they are to be prepared and mixed, *and containing such other matter and things relating thereto as the General Council shall think fit*, to be called 'British Pharmacopœia'; and the General Council shall cause to be altered, amended, and republished such Pharmacopœia as often as they shall deem it necessary." It will be seen that the words in italics give the Council full discretionary powers to do that which was said to be unlawful.

The question seems to turn largely on the object of the British Pharmacopœia. Is it in future intended for the convenience of the medical profession and those engaged in the preparation of medicines, as stated in 1867, or is it to be a pure chemists' Pharmacopœia, to be used in legal prosecutions mainly? It must be remembered that in these days it forms the only possible standard for the examination of medical students, and this is none the less true even though the volume may never have been in the students' hands. It is taken as the authority for the various text-books, and its statements must be reproduced, even when at variance with the experience and practice of the compilers of such books. It is noteworthy that in 1867, when the doses of the various drugs were introduced, the Council distinctly repudiated responsibility connected therewith. It is stated that these doses "are not authoritatively enjoined by the Council, and the practitioner must rely on his own judgment and act on his own responsibility in graduating the doses of any therapeutic agents he may wish to administer." It is notorious that some of the doses are much too small, while others are dangerously large; and yet in the hands of medical men the Pharmacopœia is probably consulted more frequently on this point than on any other. The volume is authoritative in so many directions that the reservation is apt to be overlooked, and it is naturally regarded as infallible until the publication of a new edition. From its decisions there is no court of appeal, although the judgment may be wrong. We do not understand from the debate on the original report that the malcontents desire to produce a volume on pharmacology and therapeutics, but rather that they wish to prevent the introduction, or procure the omission of, inert and useless drugs, and to save the Council from giving an air of authority to the perpetuation of many possible errors. From a chemical or pharmaceutical side the volume claims, and worthily claims, such a high standard of precision that from a medical aspect it should not, from lack of practical experience, be allowed to be open to the charge of being incorrect or misleading. For the present, with the production of a new report, harmony appears to have been re-established, though the wording of the report gives no pledges, and merely leaves all contentious matters open for further discussion. It may be assumed that the arrangements now in hand will be continued, apparently under the guidance of the editor who was originally nominated. Professor ATTFIELD has already done much good work for the Pharmacopœia in his own department, and his annual reports have shown that on chemical matters he possesses much judicial discrimination. It remains to be seen whether, with the help of a consultative committee of the Council, which, according to Sir RICHARD QUAIN, has "no authority whatever," he can satisfactorily deal with medical questions, or whether it may not, in the interests of the medical profession, be found advisable to associate with him a pharmacological or therapeutic editor, as so many of the members of the General Medical Council appear to desire.

THE inaugural address which Mr. SHIRLEY MURPHY, President of the Epidemiological Society, recently delivered,

and which we publish at length in our columns this week, will be read with deep interest by all students of epidemiology. His reputation as an epidemiologist, and the high official position which he so ably fills, justified the society in looking forward to his address with more than usual interest—an anticipation which all who read the address will admit has been fully realised. There runs throughout his remarks the characteristic caution of the true epidemiologist, and his observations as to the necessity of the "system of discipline" which was insisted upon by HIRSCH suggests that he has but little sympathy with those who indulge in "generalisations based on insufficient data."

"It is not often," said Mr. MURPHY, "that the work of the investigator immediately supplies material for the formulation of conclusions, and we must therefore be prepared to recognise that our matter is often only suggestive—is, perhaps, sufficient only for provisional hypothesis"; and the manner in which he, in the latter portion of his address, dealt with the intricate subject of diphtheria and "school influence," to which we wish here more especially to allude, was an exceedingly happy illustration of the "discipline" to which he had referred. After paying due tribute to the historical inquiries of Mr. W. H. POWER and Dr. THORNE THORNE in 1876 and 1877 into the influence of school attendance upon the prevalence of diphtheria, Mr. MURPHY proceeded to deal in an exhaustive manner with the indications in the same direction afforded by a study of the statistics now available. Our readers are no doubt familiar with the elaborate statistical analysis which he recently presented to the London County Council on the increase of diphtheria in London, and which we noticed in THE LANCET of July 21st last. It will be remembered that in the memorandum referred to Mr. MURPHY brought out clearly the fact that, although in 1871–80 the mean annual mortality from diphtheria was less than in the previous decennium, the fall in mortality was not equally shared by persons at the several ages, the fall in children aged from three to ten years being less than at age-periods either above or below these years. Again, on comparing the statistics for 1871–80 with those for 1881–90, it was found that the mortality at all ages in the latter period showed a considerable advance on that during 1871–80, but that the increase was greater for children of school ages than at ages either below or above these limits. The figures for 1891–93 also show the same exceptional incidence of diphtheria on children aged from three to ten years. The increased tendency of children at school ages to die of diphtheria began to manifest itself in 1871—i.e., the year after the operations of the Elementary Education Act, 1870, commenced; and the figures for England and Wales evince the same tendency as those for the metropolis; indeed, the evidence adduced by Mr. MURPHY in his preliminary memorandum strengthens very considerably the case against the Education Act, 1870, as having had a considerable share in maintaining the high mortality from diphtheria at school ages.

In his Presidential Address Mr. MURPHY pursued his extremely interesting analysis, and he showed strong reason for believing that in the Act of 1870 may be found an explanation of the recent increased mortality from diphtheria in thickly populated districts as compared with those sparsely populated, the tendency which was so clearly brought out by Dr. LONGSTAFF in his paper on "The Geographical Distribution of Diphtheria in England and Wales." Proceeding to examine the notification returns of scarlet fever and diphtheria in London for the years 1892 and 1893, with a view of discovering whether there could be detected in them any evidence of the cessation and recommencement of the school operations, Mr. MURPHY referred to Dr. ARTHUR WHITELEGGE'S investigations at Nottingham, in which it was shown that, according to the notification returns, fewer cases occurred on Wednesday, the day corresponding with diminished chances of infection on Sunday. He then exhibited curves arranged after the method of BUCHAN and MITCHELL showing the returns in regard both to scarlet fever and diphtheria for 1892–93, and we have no doubt that these interesting diagrams will be published in due course in the Transactions of the Epidemiological Society. Turning, first, to the figures in regard to scarlet fever, the curves exhibited showed that not only was there a marked fall in 1892, shortly after the closing of the schools, but that in 1893, when the schools closed, and opened a week later than in the previous year, the depressions and elevations in the curves—due allowance being made in each case for incubation and notification—corresponded to the closing and reopening of the schools. Carrying his investigations into the subject of age incidence, he was able to show that during the holidays both in 1892 and 1893 the children at school ages enjoyed a larger immunity than those at the ages above or below the school period. Dealing in the same manner with diphtheria, it appears that in August, 1892, there was no depression in the curve corresponding to the holiday period, but it 1893 there was in August a well-marked depression, which on analysis was proved to be due to a diminished prevalence of the disease at the school age periods of life.

The indications above set forth certainly receive, as is suggested, additional weight from a consideration of the fact that both in the case of scarlet fever and diphtheria the holiday depression occurs at a time when the seasonal curve of both diseases is in the ascendant; and it should also be remembered that the effect of school observations might be only noticeable in those years when the infectivity of scarlet fever or diphtheria is especially marked. The question as to whether the exodus of the population from London is responsible for part of the holiday depression was naturally considered, but we must confess that this does not seem to us to be a very powerful factor in the remarkable modification of the curves. The figures in regard to Brighton are interesting, but are probably too small to rely much upon. Fortunately Mr. MURPHY was able to supply the scarlet fever notification returns of Stockholm for 1893 and 1894, and they are of peculiar interest, inasmuch as the holidays in that city begin in the middle of June and terminate in the third week of August. In 1893 there was but a very slight holiday depression, but in 1894 the fall was a very marked one, and was followed by a decided rise after the reassembling of the scholars.

Mr. MURPHY intends to pursue his extremely interesting analysis into the other holiday periods, such as Christmas

and Easter, and we shall look forward to the results of his investigations. The indications of these analyses are decidedly suggestive, and much may be hoped for from a study of the statistics of other countries; in fact, all through his able address he constantly reverted to the manner in which international comparisons complicated the problems with which he was dealing. When, too, we regard these investigations, together with those of other observers, it must be said that not only in London, but also in the country as a whole, there is established a somewhat serious indictment against school operations as at present carried on. At any rate, all will agree that the facts brought forward "contribute to the reasons which already exist for further inquiry into the influence of schools in connexion with the prevalence of epidemic disease."

Annotations.

"Ne quid nimis."

SERUM THERAPEUTICS.

Now that there is every prospect of a general trial in diphtheria in this country of the remedial agent which has been obtained according to the fullest knowledge of the nature of the disease gained by the researches of recent years, it is above all things necessary that the conditions of performance of this gigantic therapeutical test should be well weighed and formulated and the results carefully and dispassionately sifted. It will not do to be content with the fragmentary results of isolated observers with no guarantee that the cases were really diphtheritic or that the treatment was carefully applied. It is said to involve no risk, and this may be so, but nevertheless the practitioner must not employ the remedy without close observation of its effects and a faithful record of them. Doubtless much will be learnt this (Friday) evening from the report to be made to the Clinical Society by two able observers, who have had the opportunity of treating a considerable number of consecutive cases. But for the future we trust that isolated instances of its application will be carefully withheld from publication, and that patience will be exercised until a vast body of well-authenticated facts has been collected and analysed. In this respect we imagine all who have the interest of medicine at heart will cordially concur. There are few acute diseases for which so many "specifics" have at one time or another been vaunted. As medical journalists we have been the recipients, more often than we care to think, of communications from enthusiastic advocates of unfailing remedies for the cure of diphtheria. Yet we know that our correspondents cannot all be right—that one or other of them must have jumped at a conclusion from insufficient data. It passes the bounds of credulity to believe that a practitioner can pass through life without losing a single case of this dread disease, as some gravely assert—a fact which they attribute to the efficacy of their prescriptions, but which the outsider is forced to assign to mistaken diagnosis on the part of the reporters. Hence we would venture to repeat the recommendation made in these columns a fortnight since in view of a thorough investigation of a line of treatment upon which so much turns, not only at present in respect to diphtheria, but for the future of the methods of cure of infective diseases—namely, that a committee should be formed to supervise and report upon all cases coming under the treatment in public institutions. It seem to us that in regard to the undertaking entered into with the Laboratories' Committee by the Metropolitan Asylums Board that such a committee might well be nominated by the two Royal Colleges. Unless some such step is taken we fear that there will be much waste of energy and very little real attainment of practical value. There is another point in this connexion which requires to be determined, and it is of no mean importance. It will be observed that Dr. Hansemann, whose objections to the *rationale* of the method are fundamental, laid much stress on the fact that many cases which would otherwise be regarded as diphtheria do not yield the Löffler bacillus. As the alleged efficacy of antitoxin is confined to the cases which are due to this microbe, it would be important to know more accurately than we do at present what is the course and what the issue of the "pseudo-diphtheritic" cases. If such cases are invariably benign, or if they are never followed by "diphtherial paralysis," then one chief objection raised by Dr. Hansemann to the grounds of the method would be met. A committee such as we contemplate would soon be able to collect sufficient material to determine this point.

RECEIVING HOMES FOR PAUPER CHILDREN IN SHEFFIELD.

THE Sheffield board of guardians have adopted an excellent plan for ensuring that the destitute children under their care shall not acquire a conscious familiarity with pauper life. They have already provided residences in different parts of the city, where the juveniles live with foster parents and are brought up in every way as the children of working people. Until now they have been received in the workhouse before being distributed to the homes; but in future this connexion with official and recognised pauperism will be abolished, and the little ones will be at first accommodated in special premises in Smilter-lane, not far from the workhouse. These buildings include the superintendent's residence, receiving home, three detached homes, and a children's hospital two storeys in height, containing eight wards. This new establishment was formally opened on Saturday, Nov. 24th, in the presence of a large company, including Mr. J. Wycliffe Wilson (chairman of the board), Sir Frederick Mappin, M.P., the Mayor (Mr. C. T. Skelton), Mr. H. J. Wilson, M.P., and Sir Walter Foster, M.P., Parliamentary Secretary to the Local Government Board. After luncheon at the workhouse the company proceeded to Smilter-lane, where the children in the homes sang a hymn, and Sir Walter Foster, in accepting the gift of a silver key, said that he felt himself privileged in being enabled to take part in the opening of the homes. The experiment was one in which he was greatly interested, and which he hoped would be successful, because it was an expansion in the right direction. This effort of the Sheffield guardians to get rid of the hereditary taint of pauperism would contribute materially to the honour of the community and would be fraught with untold blessings to future generations of neglected children. Sir Walter Foster then formally opened the gates. A well-attended public meeting was subsequently held in the children's dining-hall, presided over by Mr. J. Wycliffe Wilson, who was supported by Sir Walter Foster. The chairman pointed out that the aggregation of large numbers of pauper children in workhouse schools and district schools had many disadvantages, and in the neighbourhood of London had been attended with deplorable results. Villages of cottage homes, though better than the large barrack schools, were open to the objection that the children had very little association with children not of their own class. In Sheffield their aim was to disperse the children in small communities and mix them as much as possible with the non-pauper population, the object of the guardians being that children above three years of age should never go into the workhouse or come in contact with Pauper adults. Sir Walter Foster said that under the old

system children remained in the workhouse until they reached maturity, growing up without any knowledge of ordinary social life. The first improvement was the providing of schools apart from the workhouses. In some cases this resulted in the barrack-schools system, the children being massed together in great numbers under conditions both beneficial and otherwise. In his opinion the mechanical uniformity of life in the barrack schools was a serious defect, tending to retard mental and physical development. Boarding-out is in some respects an ideal system, but requires extreme care in supervision; and some of the homes have been unsatisfactory, so that it is not likely to be of universal application. In his opinion pauper children should, as far as possible, be treated so that they may grow up without knowing that they are paupers. This is impossible when they are kept in special institutions, because they feel that their mode of life somehow differs from that of their neighbours outside. The grand merit of the Sheffield system is that the children are thereby prevented from ever coming within the workhouse walls, and if the experiment proves to be successful the inauguration of it on the present occasion would mark a red-letter day in their social history.

THE HEALTH OF THE POPE.

THE customary good health enjoyed by the Pope has not, we regret to say, been maintained. The wave of cold that has passed over Italy has had an unfavourable effect on the octogenarian Pontiff, insomuch that on the morning of the 7th inst., which was raw and rainy, his body physician, the Commendatore Dr. Lapponi, forbade him to leave his private apartments. Catarrhal symptoms had already declared themselves when this precautionary measure was taken, and so Dr. Lapponi, fully cognisant of the excessive labour his illustrious patient is apt to impose on himself, particularly in the season of Advent, deemed it prudent to restrict the Pontiff's business to his "affari ordinari," in the transaction of which he received, as stated, in his private apartments, the prelates deputed *ad hoc* and two cardinals. In consequence of this enforced interruption of arrangements in progress the Consistory will not be held sooner than the March of next year, at which (our correspondent at Rome incidentally informs us) the cardinals to be created will be limited to three Italians (Ferrata, Jacobini, and Nocella), two Frenchmen, and one Spaniard.

SUFFERING LONDON AS A RECRUITING GROUND.

THE Vicar of Old Ford, in East London, sends a communication to the *Globe*, *apropos* of the subject of what becomes of our Board School children. Speaking from long experience, he says that thousands of boys and girls can obtain little or no employment when they leave school, and only serve to swell the criminal and idle ranks of London streets, or the list of sick applicants for admission into its hospitals. At the same time there is a constant complaint about the scarcity of army recruits and the immaturity of so many of our young soldiers. Now that the State has to pay for the education, and philanthropy largely for the food and raiment, of these classes, why should not the former have some claim to their services for national ends? The State has stood *in loco parentis* to a large number of these boys, and if many of them were only given country air, food, raiment, and some physical training they would make excellent soldiers and sailors, instead of growing up idle and ignorant, with every inducement to juvenile crime. As things are at present we neither begin at the right end nor apply our rates and taxes to the wisest and most judicious purposes in this respect. Large sums of money are diverted in directions which are less worthy in themselves and less necessary to the welfare of our social organism. One of our main objects should be to train our youth in order to make good citizens of them, and afford them, as far as practicable, a fair start in life. Board school education is, no doubt, very good in its way, but it is not everything. To educate boys and girls in these schools, and then to turn them broadcast on our streets, vainly attempting to obtain a livelihood which they cannot procure, is only to increase their discontent and unhappiness, and not at all the way to make them into good law-abiding citizens. The law compels parents to send their children to Board schools, and for the real or assumed good of the commonwealth interferes with the liberty of the subject in various directions. Philanthropy supplements the aid of the State and largely provides for the sick and indigent. It is, of course, quite right that this should be so, but it is conceivable that the growth and development of this system may reach a stage when the liberty and responsibility of the poorest of Her Majesty's subjects will be represented as a liberty to bring children into the world that their parents need not provide for, because the Poor-laws and philanthropy have accepted the responsibility of doing so. If some of the poorer children could be taken from the East-end of London and transferred to institutions, camps, and training-ships, with a view to their entering the naval and military services, the keen edge of labour competition, leading to destitution, crime, and sickness, would be dulled and the services of the State proportionately benefited. It seems but reasonable that those who have discharged the responsibilities which ordinarily devolve upon parents should have some claim on the services of those whom they have brought up and educated.

THE PATHOLOGY OF OPTIC NEURITIS.

IN the recently issued volume of the Transactions of the Ophthalmological Society there is an interesting and valuable contribution by Dr. James Taylor bearing on this unsolved problem. It was pointed out some time ago by Mr. Victor Horsley[1] that, as a rule, optic neuritis associated with intra-cranial tumour subsides after pressure has been relieved by trephining and opening the dura mater, even when the tumour could not be reached. Dr. Taylor succinctly quotes a number of cases of optic neuritis due to intra-cranial tumour which had been trephined at the National Hospital for the Paralysed and Epileptic. There were six cases in which tumours of the cerebral cortex were removed, and in all the neuritis subsided. Later the growth recurred in three cases and caused the death of the patients, but in none of these was there any return of the optic neuritis discernible with the ophthalmoscope up to the time of death. In three other cases pressure was relieved by trephining, but the tumour was not removed, and in these also the neuritis began to subside at once and had completely disappeared in two of them before they passed out of observation. We have here a clear demonstration of the paramount importance of pressure in keeping up optic neuritis when present. Taken by itself, it might also be held to be conclusive that optic neuritis was caused by pressure; but, as Dr. Taylor is careful to point out, there are many facts which cannot be reconciled with this theory. He quotes, for instance, the absence of optic neuritis in some cases of large, slowly growing tumour within the skull; and we may add that in cases of fairly rapidly growing tumours it may occur only as a final symptom. Enormous intra-cranial pressure is often met with in the non-tuberculous basic meningitis of young children, in which optic neuritis is decidedly rare. Besides, there are many cases of optic neuritis indistinguishable by the ophthalmoscope from that produced by intra-cranial tumour,

[1] Brit. Med. Jour., 1893, vol. ii., p. 1365.

in which increased intra-cranial pressure is out of the question. We fear that a solution of this complex problem is yet to be discovered, but all the evidence is contrary to the belief that there is any one efficient cause and suggests that several factors are required; but the ultimate explanation can only be reached by careful clinical and pathological observation and by the collation of the facts in a clear and unprejudiced form, as in the paper to which we refer.

DIPHTHERIA IN LONDON.

STILL further increase of fatal diphtheria in London has to be chronicled in respect of last week, during which the fatal cases were 57 in number, 35 being in children aged from one to five years and another 20 in the next fifteen years of life. Thus, since the first week of last month the deaths have shown persistent increase—namely, 42, 44, 48, 54, and 57. On the other hand, the notified attacks have remained fairly steady, with an average of 230 in the six weeks ended Dec. 1st, and a fall was seen in last week's record. It will be evident, therefore, that the per case mortality has varied somewhat. As a matter of fact, the rates in the six weeks were 21·4, 22 6, 17 6, 19·6, 22 0, and 23·5, with an average of 21·1 per cent. of notified attacks. Last week, however, the rate was as high as 28·0, so that for the last five weeks the death-rate on cases has risen equally with the actual deaths. Last week the deaths were 15 above the corrected decennial average; 6 belonged to Islington and 6 to Lambeth, 5 to Fulham, and 4 each to Kensington and Camberwell. The admissions to hospital were 104, against 83, 100, and 78 in the three preceding weeks. In Greater London the deaths from diphtheria numbered 15, including 9 in West Ham, 2 in Edmonton, and 2 in Kingston. The disease seems to cling fatally to these localities.

"R.C., M.P.C., V.S."

Dr. R. F. CASTLE and Mr. W. M. Jones are to be congratulated on the result of an action for slander brought by them recently against a bonesetter and heard before Mr. Justice Charles at the West Riding Assizes. The story of the case is as follows. A boy whose arm was crushed in a colliery accident was attended by the plaintiffs. A month after the injury the defendant, who is a farmer, having been consulted on account of some stiffness felt in the arm, said that it had been improperly treated by the plaintiffs and that the lad would be permanently crippled unless the limb was broken afresh and reset. He thereupon, with the assistance of his daughter, applied considerable force to the arm, and alleging that it was now broken put it up in splints and collected a fee. Mr. Jones having heard of these proceedings, which, indeed, had become common talk amongst the miners, insisted on an inquiry being made. The colliery proprietors consented to this, and five days after the alleged breaking of the arm by the bonesetter the case was investigated by Mr. Victor Horsley, Mr. Mayo Robson, and Mr. John Blackburn (surgeon at Beckett's Hospital, Barnsley). After the report of these gentlemen that the arm had not been rebroken by the bonesetter on the occasion of the visit to him an action for damages for slander was brought. The defendant, in his evidence, stated that he commenced practice as a bonesetter when he was twenty-one years of age. He had not attended any college and had not received any surgical training, but he had taken part in veterinary operations, and the letters "R C., M P.C., V.S." which he had placed after his name upon a certificate signified "registered chemist, member of the Pharmaceutical Conference, and veterinary surgeon." He said that he had examined the boy and found that the two bones of the forearm had become united, so that the power of rotation was lost; he broke the bones apart, himself holding the wrist and his daughter the arm. In a fresh fracture twenty-one days are required for firm union, but in such a case as the present not more than five or six days would be needed. If he had not broken the bones apart the boy would have been a cripple for life. Hanging down was the best position for the arm after such an operation. The registered chemist's evidence was supported by his daughter, who had "practised anatomy, not studied it." She said that she heard the report when the bone broke, but did not hear her father's words, sworn to by the patient, "What a lot of this man's work I have had to put right." The judge, in summing up, said the question to be considered by the jury was: Did the defendant's remark, which there could be little doubt was uttered, impute incompetency to the plaintiffs? If the words imputed incompetency they were certainly actionable. The jury found that the words complained of were used by the defendant and were untrue and slanderous. They assessed the damages at £30, and judgment for that amount was entered for the plaintiffs. The fact of the bonesetter having to pay £30 damages should impress the cautious Yorkshire working folk more than any amount of argument that an educated medical man should be more competent to deal with their ills than a registered chemist, though he be a member of a Pharmaceutical Conference and a veterinary surgeon to boot.

STERILISED MILK IN NEW YORK.

IN New York Mr. Nathan Straus has organised depôts for the sale of sterilised milk to mothers and others having charge of children and infants. The milk is obtained from cows that have been examined by a veterinary surgeon, is transported in ice, and kept in ice till it is placed in bottles for sterilising. As the tubercle bacilli die when exposed for ten minutes to 158° F., the milk is heated to 167° and kept at that temperature for twenty minutes. The infant mortality in July, August, and September, 1894, decreased 8·5, 7 5, and 18 per cent. respectively as compared with the corresponding months of the previous year. Yet for the first quarter of the current year there was an increase of infant mortality equal to 10 per cent. The second quarter the increase was equal to 3 per cent. as compared with the previous year. Mr. Nathan Straus, in the New York *Forum*, points out that it was in the second quarter of 1894 that the distribution of sterilised milk was commenced. Of course, it would be absurd to attribute exclusively to this agency the remarkable decrease of infant mortality during the third quarter of the year; but Mr. Straus is doubtless justified in claiming that the extensive sale of sterilised milk has very materially helped to bring about this good result. The sale amounted to some 2500 bottles per day, and, further, some 700 babies were daily fed on sterilised diluted milk. Undoubtedly the condition of the milk supplied at New York and in many other American cities leaves much to be desired. Considering how difficult it is to obtain perfectly pure milk, especially in large towns, the question of sterilisation becomes a very important and practical matter. Professor Sedgwick of Boston puts the case in strong words. He says:—

"This rich animal fluid, sterile at the start, but drawn by unclean hands into half-cleaned pails, and meanwhile sprinkled from above by dust of the stable, by hairs, dandruff, dirt, and particles of excrement from the skin and udder of the cow, vigorously shaken by the milker or brushed by his hat, becomes infected with organisms. That these multiply swiftly and enormously in the warm and rich fluid, well aerated by the act of milking, is also a natural consequence of favourable conditions; and, if we allow time also, the wonder is, not that it contains so many germs, but rather that it is still palatable at all."

It is true that in England special legislature provides for the control of milk shops, and gives local authorities powers to see to the cleanliness of all places where milk is stored

and sold; nevertheless, many accidents happen, and, in spite of the law, typhoid fever epidemics in England have in some cases been traced to the milk. Therefore, the question of sterilising milk is well worthy of careful consideration, and the practical experiment made in New York should be watched and perhaps imitated.

MEDICAL MEN AND THEIR DEPUTIES.

AT Greenwich County Court on Friday, Dec. 7th, before his Honour Judge Bristowe, Q.C., a case of some interest to medical practitioners was tried. Mr. Mitchell, 13, Prittlewell-square, Southend-on-Sea, late of Catford, sued Mr. Frederick Smith, 13, Rosenthal-road, Catford, for £6 15*s.* 6*d.*, for medical attendance upon the latter's children. Mr. Eldon appeared for the plaintiff, and Mr. Pook for the defendant. Defendant, it was stated, had a little boy suffering from what turned out to be membranous croup. Mr. Mitchell attended the child and ordered isolation, but in consequence of being called away to St. Thomas's Hospital in regard to an urgent matter he was obliged to leave the case in the hands of another medical man, Mr. Harman Visger, who found it to be one of a virulent character, from the effects of which the patient died. Defendant said plaintiff gave him to understand that the child was merely suffering from mumps. Had he known otherwise he would have called in a London physician. Mr. Visger was examined, and stated that he contracted diphtheria from visiting the child, upon whom he performed an operation. The bill was disputed in consequence of alleged neglect, but his Honour said that the plaintiff appeared to have given the necessary instructions and went away.—Mr. Pook: He did not give notice to the sanitary authorities.—His Honour: I do not say that he did, but there is distinct evidence of instructions as to isolation, &c., having been given by the plaintiff himself. It is a very lamentable case, but a charge of neglect should not be brought against a medical practitioner upon such flimsy terms. Judgment was given for the plaintiff for the full amount claimed, with costs.

THE PRINCIPAL MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD AND SERUM THERAPEUTICS.

ON the occasion of the lecture given by Dr. Sims Woodhead at the Examination Hall on Friday, Dec. 7th, which we print in full this week, Dr. Thorne Thorne, in seconding Lord Playfair's motion of thanks to the lecturer, made some remarks on the relation between diseases in man and in the lower animals which deserve vastly more attention than is usually given to the words of complimentary speeches. "I cannot but feel," he said, "that we have arrived at a crisis in our knowledge of the natural history of the infectious diseases in man. We find that some of the most virulent and fatal of human diseases are to be controlled if we take their specific infections, and first passing these by one or other process through the body of one of the lower animals again take up specific material from that animal and transfer it back to man. The human contagium with which we started was potent for death in man; in the lower animal the induced malady becomes trivial if not almost unrecognisable; and the resulting attenuated and modified virus which we carry back to man is found capable of at once diminishing the potency of the corresponding infection from which he is suffering down to the level of the slighter ailment of the animal, or even of inducing, for a time at least, in the healthy man a state of specific resistance to that infection, whether it be in the major or minor stage of potency. That there exists some link between certain of the specific contagia in man and those of the lower animals we have known for many years; but when we consider how so fatal a disease as natural small-pox can be transformed by passage through the bovine animal into a trivial and protective ailment like vaccinia or cow-pox, and when we find that by resort to one or other of the lower animals contagia so deadly to man as rabies, for example, can often be deprived of nearly all their potency for harm, there looms behind these scientific researches a question I have often put to myself—namely, Is it possible that man has not always been heir to those specific contagia by which in historic times the human race has so often been devastated; is it not rather that by reason of unnatural methods of life he has acquired a number of specific infections which in the lower animals were well-nigh if not altogether benign, but which, by transference to man, have acquired a potency before unknown? And if so, may we not now be learning that if we would reduce these specific contagia to their original level of trivial potency, and in the end secure their annihilation, we must take back to the lower animals these infections with all their altered and increased virulence and find in their bodies the medium by which they may be reduced to comparative or complete impotency?" This suggestion of a benign circle, in contradistinction to the vicious circle which appears to be so generally attendant upon things pathological, sounds at first hearing fanciful, but will be seen to be strictly based upon what may be expected to be the development of serum therapeutics.

PRIMARY CARCINOMA OF THE BODY OF THE UTERUS.

THE last meeting of the Obstetrical Society was a specially interesting one. After Mr. Targett's demonstration of hydatid disease of the pelvic bones, consisting of numerous photographs thrown on the screen showing the peculiar eroding effect of the disease on the cancellous tissue and—a point of morphological importance—the external budding of the secondary cysts from the walls of the parent one, Dr. Lewers related a case of primary carcinoma of the body of the uterus in which vaginal hysterectomy had been performed more than two years ago without any recurrence of the disease. Five other cases were also tabulated. In cases of doubtful diagnosis Dr. Lewers justified the complete investigation of the uterine cavity by dilatation of the cervix, rather than the usual method, given in text-books, of waiting for the development of symptoms, so that the disease might be dealt with at the earliest possible period. The difficulty of extracting the uterus in nulliparous women in whom carcinoma of the body is most frequently met with, was specially noticed. In the case described it was necessary to widen the calibre of the vagina by incision of the recto-vaginal septum and bring away the excised uterus by means of a pair of forceps devised by Dr. Heywood Smith, resembling small midwifery ones. Dr. Lewers now adopts pressure forceps instead of ligatures for securing the broad ligaments. This formed a subject of discussion amongst the subsequent speakers, some expressing a decided preference for ligatures.

THE DIFFUSION OF SMALL-POX.

THE number of new cases of small-pox in London last week was equal to the total of attacks in the three preceding weeks, having been 9; but for the fourth successive week no deaths from the disease were registered. The patients remaining under treatment in the hospitals of the Metropolitan Asylums Board numbered 32. No attacks were last week heard of in the suburban districts. As in past weeks, the disease clung to the Midland districts, Wolverhampton, Smethwick, and Handsworth again having fresh invasions; but the attacks at Birmingham showed sensible decline, having been under a score; the deaths registered were 3 in number. Half a dozen attacks

were chronicled in Liverpool, but no deaths were reported. Westward and northward small-pox seems to have been almost entirely absent, but Hull had 1 fatal case registered, and 2 or 3 non-fatal attacks. During the past month the only deaths from the disease in the great towns of Scotland were in Edinburgh. They numbered 15, of which 2 were of persons under twenty years of age and 10 between twenty and sixty years of age. They represented 3·3 per cent. of the total deaths in that city. In Dublin, in the week ended Dec. 1st, as many as 37 small-pox cases were admitted to the hospitals; 25 persons were discharged, 2 deaths occurred, and 101 patients remained under isolation in the institutions. The admissions were 19, the patients remaining 10 over the figures of the preceding week. These data do not point to any sustained diminution of the small-pox epidemic in Dublin.

THE PROBLEMS OF MUNICIPAL GOVERNMENT.

THE speech of the Home Secretary on the municipal reform of London will be interesting to men of all shades of political thought, and one statement deserves to be recorded in every organ of public opinion. He said that in London nearly 400,000 people live in homes of one room—a population equal to or exceeding that of Leeds—and that double that number are at this moment living, two or more, in two rooms. The remedy for such evils is the duty of all parties, and, indeed, can only be discovered by the united efforts of the best and most statesmanlike men on both sides and in both Houses. We sincerely hope that to-day (Saturday) men and women will be elected to municipal offices who will ponder the problem involved in such a statement as that we have quoted from Mr. Asquith's speech.

SHOULD WORKHOUSE EPILEPTICS BE TREATED IN HOMES?

WE are glad to see that this question has begun to occupy the attention of our boards of guardians. Already one male epileptic is being maintained by a London board of guardians at the Epileptic Colony at Chalfont, and at a recent meeting of the St. George's guardians it was decided, after some opposition, to board out an epileptic young woman at the Meath Home at Godalming. It was pointed out by a lady guardian that epileptics may be divided into three classes—lunatic, imbecile, and those who are neither, but who in many cases are put in the company of those who are mentally affected owing to the amount of supervision required in consequence of their fits. Hitherto these unfortunate epileptics have dragged out a miserable existence, and their depressing surroundings hasten the mental deterioration to which their fits render them liable. No one with knowledge of the subject can pretend that these patients can be properly treated in the workhouses, and we think that guardians will be well advised and will be spending the ratepayers' money with discretion if they embrace the opportunity of sending their sane able-bodied epileptics to one of the epileptic homes which are already working with such promise of success and public usefulness.

THE SUPPOSED NEW ELEMENT.

THE hopes entertained by the Fellows of the Chemical Society that Professor Dewar would be able to make some definite announcement as to the existence or non-existence of a new element in the atmosphere were doomed to disappointment. Nevertheless, the experiments that were described at the meeting of the Chemical Society on the 6th inst., although they did not permit of a definite conclusion, pointed very strongly in one direction—and that was not favourable to an addition to our list of elements. By the simple expedient of using a flask with a capillary tube Professor Dewar has avoided the unmanagable task of purifying enormous volumes of gas, and observations have been made with carefully purified oxygen and nitrogen at the actual partial pressure they exert in the atmosphere. The boiling and condensing points of nitrogen from different sources, some of which had been "tortured," as Professor Dewar phrased it, with heated magnesium, were determined in this apparatus, and no practical difference could be observed between them. It seems remarkable that the new element, if it exists, should either have the same boiling point as nitrogen or should be more uncondensable than nitrogen itself. If it had not been for the confirmation of Lord Rayleigh's and Professor Ramsay's discovery the other day by the President of the Royal Society *ex cathedrâ* we should be tempted to regard the whole affair as a mare's-nest, but now nobody knows quite what to think. In regard to this, Professor Armstrong's Presidential remarks as to the strange reticence that has been observed about it ever since the meeting of the British Association were not without considerable justification. There seems to be no reason why the scientific world should not share the confidence of the investigators, for Dame Nature is apt to play practical jokes with those who pry into her secrets, and a mistake of this kind, if admitted, need involve no loss of prestige.

TYPHOID FEVER AT NEWPORT.

WE are glad to be able to report a distinct diminution in the amount of typhoid fever at Newport; but the circumstances with which the diminution is associated tend even further to point to the town water as the prime cause of the extensive outbreak which has occurred. We have already indicated how suspicious was the source of supply from chalk wells sunk in a neighbourhood where fæcal matter was passed into chalk cesspools; we have suggested that the distribution of the fever beyond the precincts of Newport and of the Newport system of sewers might find its explanation in a contaminated water; and we felt pretty certain that Mr. Baldwin Latham, when called in, would add the weight of his testimony against the existing wells as a proper water-supply. At last measures seem to have been taken by which water from the most suspected of the two wells is no longer being distributed to the population, and it is this that may already be operating to check the diffusion of the disease. Indeed, the cessation of fresh cases is so marked that it cannot alone be due to anything like mere seasonal influence. That some control of the water had become necessary is made clear by the results of bacteriological examination of it, which have been communicated to the town council, and from which it would appear that the town water contained not only micro-organisms found in sewage, but some that are regarded as certainly coming from the human intestine. The whole evidence points to the need of abandoning altogether the present sources of water, and of seeking a supply at some place where it will not be subject to the risk of such means of fouling. We may direct attention to a letter from a well-informed correspondent, which is published in another column of our present issue.

DECREASE OF POPULATION IN IRELAND.

THE evidence of Dr. Grimshaw, the Registrar-General of Ireland, recently given before the Commission on the Financial Relations of Great Britain and Ireland, throws considerable light upon the remarkable decrease in the population of Ireland during the last fifty years. According to information published in the annual reports of the Registrar-General, the population of Ireland reached its maximum in 1845, in the middle of which year it was estimated at 8,295,061; it showed a slight decline at the middle of 1846. The serious decrease commenced, however, in 1847, the year of the potato famine,

and there was a loss of more than 2,000,000 in the population during the seven years 1846–53. Since 1853 the decrease of population has been maintained at a fluctuating rate, and in the middle of this year the population of Ireland was estimated at 4,590,700, being less by 3,704,301 than the estimate for the middle of 1845—forty-nine years ago. In the decade 1841–51 the decrease of population was 19·9 per cent., and the percentage of decrease steadily declined in the three following decades to 11·5, 6·7, and 4·4 respectively. In the last completed decade (1881–91), however, the percentage of decrease showed a recrudescence to 9·1. The last census report for Ireland shows that in 1891 there were on an average 4·3 acres to each enumerated inhabitant, including infants and children, whereas in 1871 and 1881 the proportion was 3·7 and 3·9 acres respectively. Dr. Grimshaw attributes this remarkable and constant decline in the Irish population to the serious and frequent failure of the potato crop and to the marked deficiency of manufacturing and industrial occupations for the people, although he expresses his opinion that the aggregate wealth of Ireland has considerably increased, notwithstanding the decrease of population.

LORD COLERIDGE ON THE ANTITOXIN TREATMENT OF DIPHTHERIA.

A DEPUTATION has waited on the managers of the Metropolitan Asylums Board to protest against the Board spending the ratepayers' money on the antitoxin treatment. The chief spokesman was Lord Coleridge. He objected to the use of the new serum chiefly, apparently, on the ground of cost, reminding the Board that they were a public body, spending the ratepayers' money. He did, indeed, make a point of the youthful age of the patients, and the fact that they were unable to give assent to the medical attendants in the treatment. He was not quite sure, either, that the antitoxin might not have an injurious effect. Was there ever such a weak argument against an honest attempt to stay a plague? The Metropolitan Asylums Board does spend the ratepayers' money; but if this antitoxin treatment turns out to be as useful as it promises to be it will save the ratepayers' money immensely by shortening the duration of the cases. And it may save many lives which now are lost. Some may die, of course, but many may be saved and their illnesses be shortened. The Metropolitan Asylums Board have been spending hundreds of thousands of pounds annually for years. When before did we hear of Lord Coleridge and his friends rushing to the relief of the oppressed ratepayer until now when their own fad is in question? The ratepayers will not thank them. As to the objection that the children cannot assent to the treatment, when was that assent waited for in dying children—or in plague-stricken adults, for that matter? Can Lord Coleridge not put himself for a moment in the place of the Board, or rather of its medical officers, called on to face a deadly disease, and often contracting it? If he were one of these, would he not make a loud demand to be supplied with a remedy so promising? Has it never occurred to his lordship to imagine the inequality of a rich man able to command antitoxin for his child and a poor man with his child in an isolation hospital denied the supply of antitoxin because it might add a fragment of a farthing to the rates? As to the treatment by antitoxin being yet in the experimental stage, is that not true of every remedy for this awful disease? Are we simply to let children die without doing our utmost to save their lives? Lord Coleridge has done infinite service to medical science by his protest. It serves as a foil to set off the motives and the reasoning and the humanity which are eager to put the poor man's child on a level with the rich man's, even at the risk of a few horses and the addition of a few farthings to the rates. A few more such appearances as that of Saturday and the public will see that such reasoners are destitute alike of common sympathy and of common sense.

MUZZLE OR MAGIC IN HYDROPHOBIA?

THE preventive treatment of disease is always the most effectual where it can be carried out, and the Leeds corporation have done wisely in acting on this principle with regard to the recent outbreak of hydrophobia in that city. The muzzling order, with its associated regulations, will accordingly be revived forthwith and will remain in force till further notice. The excellent results obtained by this means have been so fully explained by ourselves and others in connexion with the prevalence of rabies in the metropolitan district four years ago that little or nothing remains to add to the arguments employed in its favour at that time. We may refer our readers to THE LANCET of April 5th, 1890, for a brief digest of these. Nothing could have been more satisfactory or more obvious than the effect of the order upon canine rabies, and we have clearly shown in the article above referred to how closely and exactly the regulation fitted the circumstances of the case. There can be no question that the final disappearance of hydrophobia from London and the surrounding districts by the end of 1890 was mainly attributable to this wise and practical measure. In the face of these facts the probable result of its renewed application admits of no reasonable doubt. It is fortunate that the commanding influence of prevention in the case of hydrophobia is generally admitted for "popular" trust in means of cure is by no means particular as to its attachments. During the last epidemic we directed attention to the very dubious character of a nostrum exhibited by the chief constable of Clitheroe. To-day we are introduced to another like adventure in treatment, the apostle of which is a grocer in Colne. The "curative" method in this case appears to consist mainly in dietetic restrictions. It would be idle to discuss the evident uselessness of such empirical remedies in dealing with the virulent organisms of rabies.

EPILEPSY AND TYPHOID FEVER.

IN the *Revue de Médecine* Dr. Lannois has recorded a case which illustrates a curious and interesting peculiarity. The influence of intercurrent ailments upon the frequency or severity of the attacks in epilepsy has been long recognised, and the pyrexia has been, at least by some, regarded as the influential factor in suppressing the fits during acute illness. Dr. Lannois' patient was a woman who had suffered from attacks ever since childhood in consequence of an attack of infantile hemiplegia. This patient suffered first from an attack of erysipelas affecting the thigh, and soon after from an attack of typhoid fever. During the attack of erysipelas the fits occurred much less frequently than usual; during the attack of typhoid fever, on the other hand, they took place much more frequently. Dr. Lannois regards these facts as suggesting that the modified frequency of the attacks during acute illness depends, not on the febrile process as such, but on the nature of the specific poison, which may, on the one hand, cause an increased frequency of the attacks, or, on the other, lead to their total or partial suppression for a time.

THE ANTITOXIN TREATMENT OF DIPHTHERIA ON THE AUSTRIAN RIVIERA.

UNDER date Trieste, 7th inst., a correspondent writes:—"Since my communication on the outbreak of diphtheria on the Austrian Riviera in October last, the good effects of the sero-therapy I then recorded have been more than maintained. The epidemic is in full defervescence, and to-day the schools were reopened. At the close of the year, by order

of the sanitary office of the municipality, a detailed report of the rise, progress, and decline of the outbreak will be given to the world—a document which cannot fail to be interesting as, next to Paris and Berlin, Trieste is the third city in Europe where sero-therapy has been practised on the largest scale. A few data, culled in anticipation from the report, are worth noting. In the civic hospital, out of 236 cases treated with the Behring serum there were only fifty-two deaths—about 22 per cent. On the other hand, out of fifty-seven cases treated without the serum the deaths were twenty-eight—that is, 56 per cent. The 'protofisico' of the city, Dr. Morlato, has returned from Berlin, having acquired, on the part of the Communal Council, 300 flasks of the Behring serum."

THE International Congress for the Treatment and Protection of Infancy will be held next year in Florence, and the organising committee there are already receiving intimations from the physicians and surgeons of other nationalities signifying their intention to take part in the proceedings. Austria will be strongly represented, and communications are announced from her delegates on Children's Hospitals, Deaf-mutes, Blind and Idiot Children, Hospitals and Asylums for the Scrofulous and Rachitic, Correctional Establishments, Foundling Hospitals, Kindergärten, and Orphanages. The Vienna committee from which these contributions emanate includes the well-known names of Professor Wiederhofer, Count Falkenhayn, Baron Spinger, Geheimrath Dr. Kusy, Councillor Theimer, Dr. Gnädinger, and Professor Monti.

THE Civil Service Commissioners have issued suggestions for the assistance of medical practitioners who are consulted by candidates as to their physical fitness for the different branches of the service. These suggestions were given in detail in our issue of last week, and will generally be found useful. Among the disqualifications, however, are included "a weak constitution," "chronic eruptions on the skin or scalp," "any disease of the alimentary canal," &c. It is surely with delicate irony that in the face of such generalisations as these the Commissioners inform us "that they will not undertake to define more closely any of the disqualifying defects or diseases referred to, nor will they offer any opinion as to any questions of degree in regard to them."

PRINCESS CHRISTIAN'S active interest in the organisation and improvement of nursing was gracefully displayed at the bazaar of the Royal British Nurses' Association, which has just been held in the Grafton Galleries. The working expenses of the Royal British Nurses' Association are considerable, and this mode of appealing to the wealthy classes is usually effective. At the opening ceremony a short speech was made by Dr. Bedford Fenwick, who alluded to the continued progress of modern nursing and to the superior position now held by the nurses as a class, a result which had been greatly promoted by their system of registration. At the conclusion of his address Princess Christian declared the bazaar open. Her Royal Highness also presided at a stall, the distinguishing feature of which was a pagoda.

Mr. A. P. LAURIE, M.A., B.Sc., F.R.S. Edin., late Fellow of King's College, Cambridge, has been appointed to the vacant post of Lecturer on Chemistry and Physics in the school of St. Mary's Hospital.

WE regret to have to record the death of Mr. Alexander Redgrave, C.B., who was once Chief Inspector of Factories, and was concerned in much of the factory legislation of the last thirty years.

FROM Milan a correspondent writes: "I regret to announce that King Humbert's body physician, the Commendatore Dr. Saglione, for many years the medical adviser of the Royal household, has had an attack of cerebral hæmorrhage of a severe character followed by complete, though it is hoped only temporary, eclipse of the mental faculties. Dr. Saglione, the readers of THE LANCET are aware, was a highly respected confidant of the late King Victor Emanuel, who had frequent recourse to his sagacity and experience in affairs of diplomatic or legislative importance. He enjoyed a like position in the *vie intime* of King Humbert, from whom he was never long absent, accompanying him even in his shooting quarters for weeks together in the Pennine Alps."

ON Wednesday, the 12th inst., Sir Walter Foster received a deputation of medical superintendents of workhouse infirmaries at the Local Government Board, who were desirous of pressing the special claims of such officers to a pension. They base these claims on the facts that their whole time is devoted to their office, and that they often hold this office for so long a series of years as to be unfit for private practice. The deputation was introduced by Dr. Glover, and Sir Walter Foster went carefully into the case and recognised many strong points in the claims. He urged the medical superintendents to make common cause with other officials in the Local Government service, and promised not to forget their arguments if any occasion offered for forwarding their views.

ON Monday last the final meeting of the Reception Committee of the Public Health Congress, held in London last July, took place at the Mansion House, and at its conclusion the opportunity was embraced of presenting to Professor William Robert Smith, the President, a service of antique silver plate, together with an illuminated address testifying to his services in the cause of public health. The presentation was made by the Lord Mayor.

WE understand that the Premier has consented to receive a deputation to advocate the formation of a University for London on the lines recommended by the recent Royal Commission. The actual date is not, we believe, yet fixed, but the meeting will probably take place about the middle o January.

THE annual general meeting of the constituents of the Metropolitan Hospital Sunday Fund will be held on Monday next, Dec. 17th, at three o'clock.

MR. G. R. CUNDELL, M.R.C.S. Eng., L.S.A., J.P., has been elected chairman of the Health Committee of the borough of Richmond, Surrey.

DIPHTHERIA AND SERUM THERAPEUTICS.

IT is widely known that in the course of the debate upon the treatment of diphtheria by antitoxin serum, now in progress at the Berlin Medical Society, of which Professor Virchow is the President, a contrary view to that generally held was vigorously maintained by Dr. Hansemann, whose paper on the subject will be found in the *Berliner Klinische Wochenschrift* of Dec. 10th. As it is obviously of importance that the question should be viewed from all sides, we venture to reproduce here an abstract of this contribution, only premising that Dr. Hansemann, in his critical objections to the nature of the Löffler bacillus, apparently ignored the results of the experimental investigations of Roux, Yersin,

and S. Martin, which have gone far to establish its specific character.

At the outset Dr. Hansemann deprecated the haste with which the results of new researches were now published to the world and the insecure basis upon which many deductions were made. Theories were commingled with facts in a way which made it difficult to arrive at the truth, so that it often became necessary later to revise or even upset conclusions prematurely formed. After a reference to the one-sided manner in which this subject of diphtheria had been considered by recent prominent writers, he averred that the characters of the disease were unmistakable since the classical descriptions given by Bretonneau, and that it was only rarely that an early diagnosis could not be made. But its prognosis was most uncertain; cases mild at first might become severe, or cases apparently mild throughout might suddenly end fatally from cardiac failure or the sequential paralysis. Its anatomical characters were very definite: it might be divided into cases which were more fibrinous, those which were more gangrenous, and those which were more phlegmonous; but these forms were often commingled, agreeing, however, in the production of more or less deep necrosis of mucous membrane covered by a mass of coagulum in which bacteria vegetate.

When Löffler discovered his bacillus in 1884 he was careful not to assign to it a specific character, since he had failed to find it in a certain number of typical cases, and because the characters of the disease differed in the human subject from that which could be produced in animals. He also said that the bacillus would not develop upon uninjured mucous membranes of animals, in which it could be successfully inoculated, and, moreover, he had found the bacillus in the buccal mucus of a healthy child. In the ten years that have elapsed since then numerous microscopists have been engaged on the subject, and it might be thought that these views would have been modified in many directions. But at the present day we find that the Löffler bacillus is not found in all cases of Bretonneau's diphtheria, but only in 75 per cent. of the cases (in New York only 65·5 per cent). Nor is it ever found alone, but variously mingled with staphylococci, streptococci, pneumococci, &c. In many cases the Löffler bacillus is in scanty numbers, and may be only recognised after resort to cultures. On the other hand, this bacillus has been found in diseases which are neither clinically nor pathologically identical with Bretonneau's diphtheria. Löffler himself found it in healthy mucus, and so also have Ritter, Escherich, and others. It has occurred in persons who have neither had diphtheria nor been in its vicinity. Tobiesen found it for some weeks still persisting in one-half of a series of cases of diphtheria, yet not one of these cases communicated the disease. Uhtoff and Karl Fraenkel found it in slight cases of conjunctivitis and pharyngeal catarrh.

When inoculated under the skin of an animal it produces local œdema, hæmorrhages, and ultimately necrosis. It produces no effect on the entire mucosa; but if this be abraded a false membrane forms, differing from that of diphtheria in never spreading, but remaining limited to the seat of implantation. In this it resembles rather the effects produced by the inoculation of other bacteria or of chemical irritants, as ammonia. The disease produced by inoculation in animals has not the slightest resemblance to Bretonneau's diphtheria. The guinea-pig, which never shows any immunity to the Löffler bacillus, has never been known to be attacked with diphtheria spontaneously. It cannot be infected in the ordinary way, whereas the cat can be infected from the human subject with true diphtheria. Considering all these facts, Dr. Hansemann could not understand why Löffler had departed from the attitude of scientific caution which he had originally assumed with regard to the etiological relationship of the bacillus to diphtheria. It has not been proved to be the cause of diphtheria, although, as it is found in many cases of the disease, it may play some part more or less important. The idea advanced by some that the Löffler bacillus prepares the way for the entrance into the body of other bacteria is beside the mark, for the converse might be just as likely; or the organisms may all be dependent upon a common cause. But the bacteriologist declares that every case in which the Löffler bacillus is found is diphtheria; where it is absent it is pseudo-diphtheria or diphtheroid. If this be accepted, then cases which in all other respects, clinically, prognostically, and anatomically, are diphtheria would have to be excluded from that disease, and no one could make the diagnosis apart from the detection of the bacillus. On the other hand, it would lead to the inclusion in diphtheria of conditions which have absolutely nothing in common with it, such as rhinitis fibrinosa, a benign local affection, which never becomes "diphtheritic," but in which the Löffler bacillus is invariably present. And the same holds for the other mild affections above mentioned, or even for the healthy subjects in which the bacillus has been proved to exist.

The use of serum in the treatment of diphtheria is based on the theoretical grounds (1) that rapid immunisation from an infective disease can be produced by the disease itself, and (2) that this immunisation is due to the formation of an antitoxin, a chemical substance which destroys the toxic bacteria. No one has seen this antitoxin, it has not been produced in a test-tube, it is not a fact—only a hypothesis—yet it is spoken of as if it had been isolated and were a definite chemical substance. Experiments have, indeed, proved that animals can be rendered immune to the "Löffler bacillus disease" by inoculations with attenuated cultures, and that the serum of such immune animals can confer immunity on another animal. Yet this is only in accord with what was shown by Ehrlich in relation to known chemical agents as abrin and ricin. The weak point in the argument has been the assumption that the disease produced by inoculation of the Löffler bacillus is identical with diphtheria. Theory apart, however, has it been proved that the injection of this serum produces immunity from diphtheria, or that it cures diphtheria, and that its use is free from danger? Dr. Hansemann proceeded at some length to deal with each of these points. As regards the production of immunity, he showed that Behring and others differ as to the extent and degree of this—at the most lasting only two or three weeks. The question, however, is obviously one of great difficulty. As regards the curative powers of the remedy, he finds that statistics so far available do not show much abatement in diphtheria mortality when we consider the variability of this in different epidemics. Nor must it be forgotten that if the treatment is limited to cases in which the Löffler bacillus is present, which include many simple affections of tonsils, our statistics might readily yield a more favourable result. Paralytic sequelæ are not prevented by the treatment. In respect to possible risks in the use of serum as a remedy, there are facts to show that its use has been followed by nephritis of severe type. At any rate, one should be guarded in stating that it can produce no serious effect whatever.

The conclusions arrived at by Dr. Hansemann are:—1. There are no scientific, theoretical, or experimental grounds for accepting the so-called diphtheritic curative serum as a specific remedy for diphtheria. 2. There has not yet been brought forward any proof from practical experience of the specific remedial power of the serum in man. 3. The remedy may under certain circumstances do harm, for it exerts a decomposing influence on the blood and acts harmfully on the kidneys.

MEDICINE AND LETTERS.

BY SIMEON SNELL, F.R.C.S. EDIN.,
OPHTHALMIC SURGEON TO THE SHEFFIELD GENERAL INFIRMARY.

(Concluded from page 1366.)

BENJAMIN HOADLEY (1706–1757) was physician to St. Thomas's Hospital and to the Westminster Hospital at the same time. He was the author of a successful comedy, "The Suspicious Husband," for which Garrick wrote a prologue. He produced another, called "The Tatlers," which, however, was not published. Nathaniel Cotton (1705–1788) was in general practice at St. Albans. He kept a private madhouse, in which the poet Cowper was confined. He was a poet, his best-known work being "Visions in Verse for the Entertainment and Instruction of Young Minds" (1751)—an attempt to moralise Gay's Fables for Children. His name, however, was never attached to anything he wrote. John Hill—who called himself "Sir John" on the strength of a Swedish decoration—was a very voluminous writer on all topics—plays, scientific or pseudo-scientific subjects (especially botany), criticism, and satire. Garrick wrote of him the following lines:—

> "For physic and farces his equal there scarce is:
> His farces are physic, his physic a farce is."

He was an apothecary, then he tried acting, again became apothecary, and ultimately obtained a medical degree at

St. Andrews. The next three names can be taken together—Akenside, a poet; Smollett, chiefly a novelist; and Goldsmith, a poet, dramatist, and novelist.

Akenside (1721–1770) was born at Newcastle, and was a very precocious poet, his earliest piece having been published in the *Gentleman's Magazine* when he was only sixteen. A year later he commenced the work on which rests his poetical reputation, "The Pleasures of the Imagination." It was published in 1744, when he was twenty-three, and within a year he had attained wide distinction. Having studied medicine at Edinburgh and graduated at Leyden, he started practice first at Nottingham, but very soon removed to London, and through a patron named Dyson he attained very considerable professional success, which, however, was fatal to his poetical leanings. He subsequently graduated at Cambridge, and became a Fellow of the College of Physicians and Physician to St. Thomas's Hospital and to Christ's Hospital. He died at the age of forty-nine. Tobias Smollett (1721–1771) was a Scotchman, and was apprenticed to a surgeon in Glasgow, whom he reproduced in "Roderick Random" as "Mr. Potion." By acting as ship's surgeon he acquired that nautical knowledge which is so conspicuous in his writings. He obtained a degree at Aberdeen in 1750, but his experience of practice was not successful, and after a final attempt at Bath he abandoned physic for literature. He was a novelist, dramatist, satirist, poet, and a journalist as well. His influence in novel-writing is said to have been greater than even that of his contemporary Fielding. His works are coarse in expression and devoid of that veneer which glosses over things in the modern novel. His last, "The Expedition of Humphrey Clinker," is by many thought to be his best. "Roderick Random" is in great part an autobiography. Although remembered chiefly as a novelist his other writings were many. After the battle of Culloden he wrote a poem filled with pathos, and called "The Tears of Scotland." The author of "The Vicar of Wakefield," "The Traveller," and "She Stoops to Conquer" fills a most important place in the literature of our country. Oliver Goldsmith (1728–1774), a contemporary of Smollett, was the son of an Irish clergyman and intended for the Church. He took a degree in Arts at Trinity College, Dublin, but having no zeal for a clerical life he went to Edinburgh to study medicine in 1752 and afterwards travelled on the Continent, visiting Leyden among other places, but it is supposed he took his degree of M.B. at Padua. When he came back to London his finances were represented by a few halfpence, and an apothecary near the Monument, through motives of pity, employed him in making pills and potions. He tried independent practice, and in 1757 he wrote that he was making shift to live by a very little practice as a physician and a very little reputation as a poet. He subsequently relinquished practice, but in 1765, with the growth of his literary fame, he resumed it for a time. He was always impecunious, and it is said that when he received sixty pounds (or guineas) for "The Vicar of Wakefield" it enabled him to pay his debts and rate his landlady. Perhaps few novels have been more widely read than this, yet the publisher kept the MS. unused for two years, until he was encouraged by the success of "The Traveller." In a month there was a call for a second edition. The versatile genius of Goldsmith is admirably expressed in Johnson's epitaph on his monument in Westminster Abbey.

Dr. John Moore (1730–1802), father of General Sir John Moore of Corunna reputation, was a notable man of letters as well as a hard-working practitioner. He wrote "Edward, or Various Forms of Human Nature," and "Mordaunt." His novel "Zeluco" is thought to have influenced the life and poetry of Lord Byron. Erasmus Darwin (1731–1802), the grandfather of Charles Darwin the naturalist, was a successful physician at Lichfield and a well-known man of letters, especially as a poet. John Lettsom, the Quaker physician, also belonged to this period. John Aikin (1747–1822), the son of a Dissenting minister and the brother of Mrs. Barbauld, graduated as M.D. at Leyden and practised at Yarmouth, but mixed himself up with politics and no doubt suffered thereby. He afterwards went to London, but no very considerable success attended him in his profession. His daughter, Lucy Aikin, has written an excellent life of her father, and several of his sons became distinguished. Aikin's works of all kinds were very numerous. Some were written with Mrs. Barbauld, notably "Evenings at Home," a collection of tales and fables, dialogues, and verses. He translated Tacitus and other authors. He was a close friend of Howard the prison reformer, and wrote a view of his character, and after his death published his last letters. He also produced a Biographical Memoir of Medicine to the time of Harvey which, to his disappointment, was not appreciated by the profession. He brought out a volume of poems and edited Johnson's Poets, adding the author of "The Fairy Queen," whom Johnson had for some reason omitted. George Crabbe (1754–1832), whom Byron terms "Nature's sternest painter, yet the best," has for long been a favourite with me. At the age of fourteen he was apprenticed to a village practitioner near Bury St. Edmunds, and after being an assistant at Aldeburgh he set up on his own account; but, his practice falling off, he gave up medicine and went to London with £3 in his pocket to take up literature. He obtained the friendship of Burke and Thurlow, and in 1782 became chaplain to the Duke of Rutland at Belvoir. His "Village" was completed and published in 1783, being succeeded by the "Newspaper" in 1785. Twenty-two years' silence followed. For his "Tales of the Hall" Murray gave him £3000, with the copyright of his other poems. Cardinal Newman read these when they first appeared with extreme delight, and thirty years later with fresh zest. Sir Walter Scott, Wordsworth and Fox the statesman were ardent admirers of his poetry. Crabbe was a clergyman of the old-fashioned school, a preacher of good homespun morality, and a good friend to the poor, for whose benefit he still practised medicine. John Berkenhout (1730?–1791) was a miscellaneous writer, but his fame rests chiefly on his "Biographica Literaria," which contains the lives of English, Scotch, and Irish writers down to 1771. James Currie (1756–1805), besides writing on medical subjects, published an edition of Burns, together with a life of the poet. Robert Anderson (1750–1830), editor and biographer of British poets, also some time editor of the *Edinburgh Magazine*, was the friend and helper of Thomas Campbell, for whose "Pleasures of Hope" he found a publisher. John Mason Good (1764–1827) was a writer of miscellaneous prose and verse and a translator of Lucretius. John Leyden was a physician, poet, and scholar, and a very remarkable man. He was born in Roxburghshire, obtained his medical degree at St. Andrews, and after work in England had charge of the General Hospital in Madras (1803). He was subsequently Professor of Hindustani at Calcutta, a judge and assay-master, and assisted in settling Java after the conquest. Of his remarkable work in India it was said in a eulogium at the Literary Society of Bombay (Dr. Erskine), "that in eight years he had done almost as much for Asia as the combined scholarship of centuries had done for Europe. He had nearly effected a classification of its various languages and their kindred dialects." He wrote much and made many translations. He assisted Scott with his "Border Minstrelsy," contributing five poems to the first volume, and Constable published his edition of "The Complaynt of Scotland." Joseph Henry Green (1791–1863) was Coleridge's intimate friend and literary executor. For the better performance of this task he relinquished a large private practice, and before his death had published two volumes dealing with Coleridge's philosophy. David Macbeth Moir (1798–1851) was the author of several works, including "Mansie Waugh," and a popular contributor to *Blackwood* in its early days. Lever (1806–1872), the ever-popular novelist of Irish life, was an Irishman, and graduated in Arts and Medicine at Trinity College, Dublin, in 1831. He also studied medicine at Göttingen, and practised in Ireland as well as in Brussels. From this latter place he returned to Dublin to conduct the University magazine, but in consequence of political troubles he gave up the editorship in 1845. That he was afterwards appointed Consul at Spezzia, and later at Trieste, where he died, is well known. "Charles O'Malley," perhaps his most popular work, appeared in 1840, and "Jack Hinton" in 1843. Samuel Warren (1807–1877), the well-known author of "Ten Thousand a Year" and the "Diary of a late Physician," had a medical training. He says himself: "I was for six years actively engaged in the practical study of physic—a profession which, however, I quitted in 1827." Robert Macnish (1802–1837) studied medicine at Glasgow and Paris, graduating at the former University. For his thesis he took "The Anatomy of Drunkenness," and of this it has been said that he elucidated it with a freshness and thoroughness which, notwithstanding the general correctness of his habits, appear to bespeak an intimate personal acquaintance with his theme, doubtless acquired in the interests of science. His masterpiece was "The Metempsychosis," a gem of fantastic fiction. Among the best known of his other works

is "The Philosophy of Sleep." Dr. John Brown (1810–1882) was up to the close of his life an active medical practitioner in Edinburgh. He was the author of many essays which have appeared in "Horæ Subsecivæ," but his most popular story has been "Rab and His Friends," a work filled with the most pathetic incidents. Albert Smith (1816–1860) was the son of a surgeon, and followed his father's profession. He was associated with *Punch* from the beginning, and also with *Bentley's Magazine*. "Mr. Ledbury," which was his first and, as many think, his best book, appeared in *Bentley's Magazine*, and to *Punch* he contributed a series of articles entitled "The Physiology of the Medical Student." John Keats, the poet and author of "Endymion" and "Hyperion," was also a medical man. He was apprenticed against his wish, became a student at Guy's Hospital, and qualified at the Apothecaries' Hall (1816).

[Mr. Snell, having given an account of Thomas Young, the eminent scientific discoverer, and referred to Sir Henry Thompson, Sir Prescott Hewett, Sir Francis Seymour Haden, Sir Benjamin Ward Richardson, and Dr. Conan Doyle, concluded with an eloquent panegyric upon the work of Dr. Oliver Wendell Holmes, who was alive at the time when the address was delivered.]

SANITATION AT CONSTANTINOPLE.

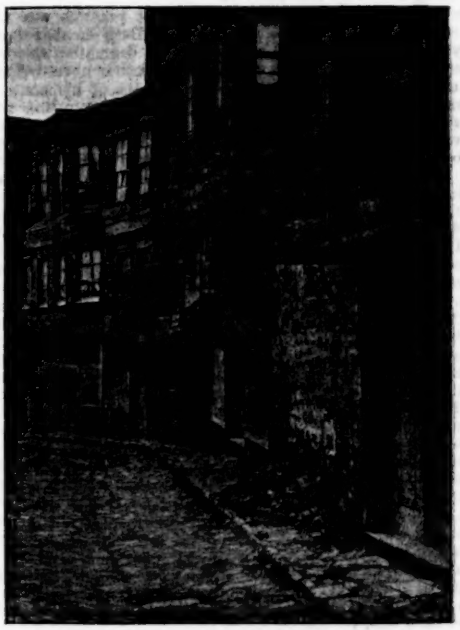
(FROM A SPECIAL CORRESPONDENT.)

(Concluded from p. 1371.)

ON the Stamboul side I visited notably the Balat quarter, and was here able to take a photograph of a street where there had been several cases of cholera. (Fig. 2.) It will be seen that the houses are for the most part made of wood; they are irregular in shape and falling out of line, the crossbeams giving way and bending. Here there is some attempt to construct a street, but the pavement, made with large, irregularly-shaped stones, is very loose, so that water and mud easily collect between. There is also for this quarter a sewer outfall in the Golden Horn, which, like that of the Cassim Pacha district opposite, is a cause of great nuisance, and yet it is the waiting-place of the boatmen and the *kaiks*. Here, in the Balat district—as, indeed, in most parts of Constantinople—there are innumerable street markets and street vendors. Much bad fruit and questionable meat are sold in the open street. Offal is thrown upon the irregular pavement; it decomposes in offensive puddles, and close by large pans full of milk or cream cheese are exposed in open shop-fronts, unprotected by glass windows from the ceaseless clouds of dust that blow over them. At Balat many of the inhabitants are Armenians and Jews, and are so dirty in appearance that they contrast very unfavourably with the Moslems. In another Jew quarter, called Tataleva, the cesspits from the private houses are actually overflowing into the streets. In such filthy streets and surroundings trade in edibles should not be allowed. Unfortunately there are vested interests in the right to sell certain objects. This is called the Yeddic right, and the building of a proper central and various local markets would upset these privileges. Actually they constitute a great source of income to the Mosques, these religious institutions having the privilege to sell licences to street hawkers &c. The same rule applies also to private slaughter-houses, and accounts for the absence of a public abattoir. The Prefecture of Police on its side derives some of its income from the licences it sells to street vendors, and it is difficult to upset customs that are several centuries old. Nevertheless, either the sale of food in the streets must be prohibited or the streets must be properly drained, properly paved, and kept scrupulously clean. Most of the streets are narrow and crooked, and the pavement is such that those who ride in carriages have some difficulty in keeping their seats on account of the jolting. In some places dwellings are absolutely inaccessible excepting on foot. Such is the condition of the streets that for ladies, especially when in evening dress, it is often necessary to employ Sedan chairs.

In respect to water, Constantinople is not so badly off as in regard to drainage. There is at least one supply which is fairly good and safe. The water of the Derkos provided by a French company is brought to town in iron mains. This comes from a lake near the Black Sea. It is, perhaps, a little salt and slightly ferruginous. It is not a very pleasant water; but there is no reason to believe that it is contaminated, nor is infiltration likely to occur where, as in this case, iron pipes are used. It is sold at the rate of 80 centimes per cubic metre, and is generally supplied at the hotels frequented by foreign visitors. Then there are the aqueducts of the Bends, some of which were established in the time of the Byzantine Empire and greatly enlarged by Mahmud I., who in 1732 built a fine aqueduct to supply the Pera, Galata, and Beshiktash districts. The water in winter is impounded in large reservoirs. It is carried across the Buyukere valley by an aqueduct 560 yards long, sustained by twenty-one arches, and then flows through a conduit to Taksim, near Pera, whence it is distributed all over the town. The Long Aqueduct, 2200 ft. long and 80 ft. high, was built by Suleiman the Magnificent. It has two tiers of arches. Justinian's Aqueduct is 720 ft. long, 108 ft. high, and passes over two tiers of pointed arches that have a span of 55 ft. Then there is the Crooked Aqueduct in two sections almost

FIG. 2.



Street in the Balat District.

at right angles with each other. One section is 670 ft. long and 106 ft. high, and where the valley is deepest has three tiers of arches. The second section is 300 ft. long and has twelve semicircular arches. There are four Bends or reservoirs in the neighbourhood of the forest of Belgrad, and the inhabitants of the villages round about used to be exempt from taxation on the understanding that they should keep these waterworks clean. The water is soft and agreeable to the taste. Of late years, however, the peasantry have been taxed as all other peasantry, and consequently they have ceased to repair and cleanse the aqueducts. For this or for other reasons the water has become so contaminated that it has been necessary, for the present at least, to entirely stop the supply. Thus these magnificent aqueducts, which I have but very briefly enumerated and described, are for the time being useless. There are also near Constantinople some very excellent springs, but as the water from these springs is brought to town in small barrels on the backs of mules there is some risk of contamination in the course of such manipulation. Yet these waters are considered a luxury and are bought by those who can afford to pay for the cost of transport. Also a great deal of rain water is collected from the roofs of houses and is sometimes

used for drinking as well as for washing purposes. There are likewise a good many wells in Constantinople, though I was assured that most persons are wise enough to use their well water only for washing purposes. During the cholera epidemic it became a very general practice to boil water used for drinking, and the Sultan, at his own expense, caused all the soldiers of the garrison to be supplied with special spring water or with boiled water. This precaution has been continued the whole of the past summer, in spite of the considerable cost entailed.

Nevertheless, all such precautions, though excellent in themselves, are but petty details when compared with the fundamental necessity of promptly delivering every house and every street from the sewage contamination which now exists on all sides. A general scheme of drainage, involving also the laying of proper pavement and the construction of street gutters throughout the whole town, must be accepted and enforced. All other matters are of secondary importance. We have seen at Hamburg and Havre—in fact, everywhere—during the severest cholera epidemics, and even when the water-supply was generally supposed to contain the specific germ of cholera, that districts well drained and in a good sanitary condition were comparatively free from disease. On the healthy heights, the rocky, dry soil of Altona, there was little or no cholera; but there was a good deal of cholera in the low-lying districts of Altona. In Hamburg the deaths from cholera varied in the different districts from 4·48 per 1000 in the well-drained, dry soil quarters to 24, and in one case to 27·5, per 1000 in the insanitary, badly drained, marshy neighbourhoods. Such districts as the latter exist at Constantinople. There was good water at Altona, bad water at Hamburg, but the prevalence of cholera varied according to the sanitary condition of the districts, and the same rule prevails for most other diseases. This has been shown very clearly with respect to the typhoid fever and cholera epidemics at Havre. As Constantinople stands on seven hills, as Pera is a hill, and as there are hills on all sides the greater part of the town can be easily drained by mere gravitation. But there are low-lying districts. These are the most unhealthy districts, and therefore need very effective drainage. Yet it is absolutely impossible to drain these districts by natural gravitation, for the soil is wet and flat. Here the sewage must be raised by mechanical power. Such power may also be useful in enabling the whole of the sewage to be conducted to distant outfalls. The lifting stations will have to be close to each other, and therefore numerous, because it will not be possible to dig deeply into the marshy soil so as to create gradients; and yet the fall must be ample, so that the sewers shall be absolutely self-cleansing. A separate system may with advantage be constructed for the rain water, which comes down into the valleys with great force, suddenness, and volume, as is proposed in the Stékoulis and Jasmund scheme. This rain water might without injury flow into the Golden Horn; but its actual malodorous condition very clearly shows that sewage proper must not be allowed access to this tideless harbour. It will be necessary to carry the sewage to outfalls at a considerable distance. Even outside the Golden Horn, at the Topkhaneh districts, the currents would wash back the sewage. A carcase of a horse was on one occasion cast into the sea at this point and apparently carried away; but the next day it was washed back to the Topkhaneh shore, and thus returned for three days, consequently showing the circular action of the currents. Evidently, therefore, the mouth of the Golden Horn is still too near for a sewage outfall. Perhaps the power necessary to raise the sewage in the low-lying districts could also be available to facilitate the sending of the entire sewage to a considerable distance from the town. That power might be generated by burning the "hard and soft core," or the *gadoue*, to use the French term, which is actually carried out to sea in barges and wasted. Though the pariah dogs are supposed to do most of the scavenging at Constantinople there is a service to collect household refuse, and, as just stated, this is thrown into the sea. By the construction of a destructor it could be burnt, the heat producing the steam power could be utilised for the purpose of raising the sewage, and the clinkers would form an excellent material for the much-needed paving of the town.

As the leaseholders of Constantinople are as yet but lightly taxed the financial means for carrying out all these sanitary works could be easily found if there was a stable authority with which it would be possible to effect a satisfactory arrangement. For this reason it is essential to unite the sanitary services of the town as indicated in my earlier remarks.[1] Then a municipal loan might be levied. With its product the town might not only be drained and paved, and the water aqueducts repaired, but sundry other improvements effected. There is notably great need of some garden or open space where children could enjoy healthy exercise and games without disturbing the older and more staid sections of the population. If all this can be satisfactorily accomplished it is very probable that Constantinople will become the healthiest large town in Europe. But first each house must be properly drained. That this can be done in Constantinople is shown by the better-class hotels, such as the Hôtel Bristol or the Hôtel Royal, where there are well-trapped closets, each with a two-gallon flush. If every house in Constantinople had its drains trapped and flushed, and accurately laid, communicating with self-cleansing sewers carefully ventilated throughout, and if the streets were properly paved and the scavenging strictly done, the capital of Turkey would certainly be the cleanest town in Europe. The population actually is the cleanest I have ever seen both in their persons and the care they take of their homes. It is only the Jew, the Armenian, and a few very poor Turkish labourers, who have no homes of their own, but live in crowded tenement houses, who are sometimes not clean. The dirt that exists in Constantinople is there, not because the people are unclean or careless, but because there is no system of drainage and no effective scavenging. When we note how often the Turks as a matter of religious duty wash themselves; when we consider that the same religion forbids their touching alcohol and that prostitution and its attending diseases do not exist, it will be readily seen that if the sanitary condition of Constantinople was satisfactory the excellent climate and the sobriety and cleanliness of the vast majority of the people would produce almost ideal conditions and would ensure to the populations concerned probably the best health and the lowest death-rate of any large town in Europe or any other part of the world.

CHRISTMAS BOOKS.

CHRISTMAS, as we now all know, is the most popular publishing season. It is the chosen time for the publication of much ordinary literature, and it is especially the season for the publication of children's books. The pressure on our space is so great that we are unable to do more than note briefly the salient features of some of the volumes we have received.

Messrs. Blackie and Sons send us three story-books from the untiring pen of Mr. G. A. Henty, to whom all themes, all dates, and all topics seem alike to suggest a story of full-blooded enterprise. "Wolf the Saxon" is a story of the Norman Conquest, we are glad to say, written in Victorian English and not in any foolish attempt to reproduce the linguistic methods of the Beorns, Osgods, Morcars, and Edithas. It is a good straightforward story of adventure. "When London Burned" is a more sensational effort, and deals with the times of the Restoration, the Plague, and the Fire of London; and the intention of its author is to be patriotic as well as interesting, for he has desired to point out that the reign of Charles II., popularly believed to be one of the most degraded periods of English history—a period when the extravagance and profligacy of the Court were bringing about the ruin of the people—was really a time when our nation was making extraordinary advances in commercial status and trading wealth, a period ennobled by the valour of our sailors and the enterprise of our merchants. The title "In the Heart of the Rockies" goes far to tell the contents of the third volume from Mr. Henty's pen. It will compare favourably with many others very like it. Miss Harraden, whose piquant account of life at Davos achieved a popularity and a success some two or three years ago that must have astonished the author, has written a book for children under the title of "Things will take a Turn" (Messrs. Longmans, Green, and Co.), and as might be expected the story is a gracefully put together, well written, and altogether interesting piece of work. A very different sort of author, Miss M. E. Braddon, around whose name cling terrific associations

[1] THE LANCET, Nov. 24th, 1894.

of assassination and fraud, of concealments of birth, of concealments of death, of concealments of jewelry, and of general mystery and horror, has come down from her gloomy pedestal and written a little book for children, and it is a first-class little book too. We have, of course, all of us been aware since the days of "Asphodel" and "Ishmael" that Miss Braddon did not in any way depend upon murder and mystery for her charms; and in the "Christmas Hirelings" (Simpkin Marshall and Co.) we have a clear, sensible, children's story, written with the wealth of minor detail in which children revel. The illustrations are very good examples of artistic production, and are the work of Mr. F. H. Townend. The little vignettes with which the chapters commence now and again are especially effective. We congratulate Miss Braddon on having left the realms of imperfectly understood pathology, and infinitely prefer her sympathetic story of a sick child to her attempt to portray the ravages of epilepsy. In "Olaf the Glorious," by Mr. Robert Leighton (Blackie and Sons), we have a story of the time of the Vikings. The date is about the same as Mr. Henty's "Wolf the Saxon"; but, unlike Mr. Henty, the author has thought well to use Wardour-street English. None the less, we have to congratulate him upon a pleasing and interesting story, which an elaborate map, a genealogical table, and a considerably worked vein of religion do not make dull. "Beryl," by Miss Georgiana M. Synge (Skeffington and Son), is for larger children, and is not free from a suspicion of mawkishness. It is, however, a well-written little book. Dr. Conan Doyle's "Round the Lamp" (Methuen and Co.) makes a more distinct bid for literary position than any of the works we have previously enumerated, but cannot, on the whole, be considered a success. The title, to begin with, is misleading, for it is only few general practitioners that affect the red lamp as a sign—the distinction is forced upon them by custom and only for the information of their poorest patients — whereas the episodes in Dr. Conan Doyle's book are neither confined to the career of the urban practitioner nor to the ills of the lower classes. In some of the stories he has gone into medical detail to an extent that should unfit the stories for popularity, while, on the other hand, as clinical studies or scientific contributions they are not informatory. The story, after, and a good deal after, Thomas Hardy, entitled "The Case of Lady Sannox," is the only one in the volume which is likely to give the reader a real thrill, although in many others the horrors are piled up. The book cannot be regarded as a success when the position of its author is taken into account. We are happy, however, to allow that there is no English man of letters who could have written better on the lines.

(To be continued.)

THE PAY SYSTEM AT THE GREAT NORTHERN CENTRAL HOSPITAL.

THE adjourned discussion on Mr. Greaves's "boycotting" resolution was resumed on Friday, Dec. 7th, at the Athenæum, Camden-road, London, N.

Dr. GODFREY, the chairman, said a torch had been lit up that was not likely to be soon put out. There was a great deal of right on the side of the medical practitioners, but the staff of the Great Northern Central Hospital had their arguments, and he hoped the present meeting would be characterised by courtesy. The agitation was not against the Great Northern Central Hospital in particular, but against the pay system in general. A milder resolution than the one before the meeting had been prepared, and he hoped that this resolution would be unanimously carried.

Dr. BULGER then submitted the following as an amendment to the resolution: "That this meeting of medical practitioners of North London, whilst regretting the rupture of amicable professional relations with the staff of the Great Northern Central Hospital, affirms its position that the action of the staff is ethically indefensible and contrary to the interests of the profession at large." He trusted that the meeting would be united in its action.

Dr. BEATON, who seconded the resolution, said there was no animus against the hospital or its staff, but it was felt that the staff had not acted in a right and proper manner.

Mr. GEORGE BROWN suggested that Mr. Greaves should withdraw his resolution. The amendment left it quite an open question whether anyone should call in a member of the staff as consultant or not; and, whatever the thoughts of the meeting were, it would be better not to express them in such plain language as that covered by the resolution.

Dr. JOSEPH WILSON supported the amendment, but expressed his surprise that the original resolution should be dropped.

Other speakers expressed their views on the subject, laying stress upon the fact that the previous meeting had been adjourned in order to give the medical practitioners of North London an opportunity of adequately considering the question. It was also stated that the leading men of the profession were on the side of the practitioners, as also was THE LANCET.

Mr. GREAVES having expressed his willingness to withdraw his resolution, and Dr. Parker, the seconder, having acquiesced under protest, Dr. Bulger's motion was unanimously carried.

On the motion of Dr. BEATON, seconded by Mr. HANNAH, it was decided that additions should be made to the old committee, which should continue with its work of reform.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6320 births and 4057 deaths were registered during the week ending Dec. 8th. The annual rate of mortality in these towns, which had increased in the preceding four weeks from 16·9 to 17·8 per 1000, further rose last week to 20·2. In London the rate was 19·4 per 1000, while it averaged 20·9 in the thirty-two provincial towns. The lowest rates in these towns were 14·6 in Burnley, 14·8 in Birkenhead, 15·2 in Halifax, 15·4 in Nottingham, and 16·5 in Leicester; the highest rates were 24·3 in Preston, 25·9 in Huddersfield, 27·2 in Sunderland, 28·6 in Oldham, and 29·1 in Norwich. The 4057 deaths included 468 which were referred to the principal zymotic diseases, against 352 and 431 in the preceding two weeks; of these, 155 resulted from measles, 95 from diphtheria, 74 from whooping-cough, 55 from "fever" (principally enteric), 46 from diarrhœa, 39 from scarlet fever, and 4 from small-pox. The lowest death-rates from these diseases were recorded in Norwich, Leicester, Halifax, Nottingham, and Bristol, and the highest rates in Sunderland, Gateshead, Huddersfield, Leeds, and Portsmouth. The greatest mortality from measles occurred in Brighton, Portsmouth, Leeds, Sheffield, Gateshead, and Newcastle-on-Tyne; from scarlet fever in Swansea; from whooping-cough in Cardiff, Huddersfield, and Blackburn; and from "fever" in Burnley and in Sunderland. The 95 deaths from diphtheria included 57 in London, 7 in Manchester, 6 in West Ham, and 4 in Liverpool. Three fatal cases of small-pox were registered in Birmingham and 1 in Hull, but not one in London or in any other of the thirty-three towns. There were 32 cases of small-pox under treatment in the Metropolitan Asylum Hospitals on Saturday last, the 8th inst., against 42, 33, and 31 at the end of the preceding three weeks; 7 new cases were admitted during the week, against 2 and 6 in the preceding two weeks. The number of scarlet fever patients under treatment in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2142, against 2254, 2196, and 2148 on the preceding three Saturdays; 228 new cases were admitted during the week, against 223 and 191 in the preceding two weeks. The deaths referred to diseases of the respiratory organs in London, which had increased from 245 to 263 in the preceding three weeks, further rose to 338 last week, but were 136 below the corrected average. The causes of 65, or 1·6 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Cardiff, Oldham, Newcastle-on-Tyne, and in nine other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Leicester, Preston, and Halifax.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had increased in the preceding three weeks from 20·3 to 21·4 per 1000, further rose to 22·1 during the week ending Dec. 8th, and was 1·9 per 1000 above the mean rate during the

same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 14·8 in Paisley and 15·9 in Leith to 24·2 in Dundee and 25·7 in Aberdeen. The 630 deaths in these towns included 26 which were referred to measles, 15 to whooping-cough, 13 to diarrhœa, 12 to scarlet fever, 7 to diphtheria, 6 to small-pox, and 5 to "fever." In all, 84 deaths resulted from these principal zymotic diseases, against 80 and 91 in the preceding two weeks. These 84 deaths were equal to an annual rate of 3·0 per 1000, which was 0·7 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had increased from 12 to 22 in the preceding three weeks, further rose to 26 last week, of which 15 occurred in Glasgow, 8 in Aberdeen, and 3 in Dundee. The 15 deaths from whooping-cough were within 2 of the number in the previous week, and included 11 in Glasgow and 3 in Greenock. The fatal cases of scarlet fever, which had been 6 and 11 in the preceding two weeks, further rose to 12 last week, of which 6 occurred in Glasgow and 4 in Edinburgh. The deaths referred to diphtheria, which had been 12, 13 and 14 in the preceding three weeks, declined to 7 last week, and included 2 in Edinburgh, where all the 6 fatal cases of small-pox were also recorded. Of the 5 deaths referred to different forms of "fever," 3 occurred in Glasgow. The deaths from diseases of the respiratory organs in these towns, which had been 142 and 164 in the preceding two weeks, further rose to 169 last week, but were 76 below the high number in the corresponding week of last year. The causes of 40, or more than 6 per cent., of the deaths in these eight towns were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 24·3 and 21·2 per 1000 in the preceding two weeks, rose again to 25·4 during the week ending Dec. 8th. During the past ten weeks of the current quarter the death-rate in the city has averaged 22·6 per 1000, against 16·3 in London and 19·5 in Edinburgh. The 170 deaths registered in Dublin during the week under notice showed an increase of 28 upon the number in the previous week, and included 14 which were referred to the principal zymotic diseases, against 14 and 10 in the preceding two weeks; of these, 6 resulted from small pox, 3 from diarrhœa, 2 from "fever," 1 from scarlet fever, 1 from whooping-cough, 1 from diphtheria, and not one from measles. These 14 deaths were equal to an annual rate of 2·1 per 1000, the zymotic death-rate during the same period being 2·0 in London and 2·5 in Edinburgh. The deaths from small-pox, which had been 3, 1, and 3 in the preceding three weeks, rose again to 6 last week, a higher number than in any week since August last. During the past ten weeks of the current quarter as many as 30 fatal cases of small-pox have been registered within the city. The deaths referred to different forms of "fever," which had been 3, 5, and 2 in the preceding three weeks, were again 2 last week. The 3 deaths from diarrhœa also corresponded with the number in the previous week. The 170 deaths in Dublin last week included 38 of infants under one year of age and 42 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons considerably exceeded the numbers recorded in the preceding week. Three inquest cases and 3 deaths from violence were registered; and 67, or more than a third, of the deaths occurred in public institutions. The causes of 11, or more than 6 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING NOVEMBER, 1894.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality during November in each of the forty-three sanitary areas of London. With regard to the notified cases of infectious disease in the metropolis during last month, it appears that the number of persons reported to be suffering from one or other of the nine diseases in the accompanying table was equal to 9·5 per 1000 of the population, estimated at 4,349,166 persons in the middle of this year. In the preceding three months the rates had been 8·5, 9·6, and 10·0 per 1000. Among the various sanitary areas the rates were considerably below the average in Kensington, Westminster, Hampstead, Holborn, City of London, St. Saviour Southwark, and Lewisham; while they showed the largest excess in St. Pancras, Bethnal Green, Limehouse, Poplar, St. Olave Southwark, Bermondsey, Rotherhithe, and Battersea. The prevalence of small-pox in London showed a further considerable decline during November, 20 cases being notified during the month, including 7 in Marylebone, 4 in Paddington, 2 in St. Pancras, and 2 in Rotherhithe. The Metropolitan Asylum Hospitals contained 31 small-pox patients at the end of November, against 151, 93, and 45 at the end of the preceding three months; the weekly admissions averaged 6, against 34, 17, and 9 in the preceding three months. The prevalence of scarlet fever in London showed a slight further decline from that recorded in recent months; this disease was proportionally most prevalent in Fulham, St. Pancras, Limehouse, Newington, Bermondsey, Rotherhithe, Battersea, and Plumstead. The Metropolitan Asylum Hospitals contained 2114 scarlet fever patients at the end of November, against 2082, 2058, and 2207 at the end of the preceding three months; the weekly admissions averaged 208, against 214, 245, and 246 in the preceding three months. The prevalence of diphtheria showed a slight decline from that recorded in the preceding month; among the various sanitary areas this disease showed the highest proportional prevalence in Fulham, Chelsea, Bethnal Green, Limehouse, St. George-in-the-East, Rotherhithe, Camberwell, and Greenwich. There were 517 cases of diphtheria under treatment in the Metropolitan Asylum Hospitals at the end of November, against 450, 496, and 537 at the end of the preceding three months; the weekly admissions averaged 90, against 80, 96, and 100 in the preceding three months. The prevalence of enteric fever in London showed a further increase upon that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in St. George Hanover-square, Marylebone, Strand, Limehouse, Poplar, Rotherhithe, and Lee. Erysipelas showed the highest proportional prevalence in St. Pancras, Holborn, Bethnal Green, Poplar, and Rotherhithe sanitary areas. Two cases of puerperal fever were notified in Chelsea, Bethnal Green, Lambeth, and Battersea sanitary areas.

The mortality statistics in the accompanying table relate to the deaths of persons actually belonging to the various sanitary areas, the deaths occurring in the institutions of London having been distributed among the various sanitary areas in which the patients had previously resided. During the four weeks ending Saturday, Dec. 1st, the deaths of 5078 persons belonging to London were registered, equal to an annual rate of 15·2 per 1000, against 16·0, 14·4, and 15·8 in the preceding three months. The lowest death-rates during November in the various sanitary areas were 9·6 in Lee, 10·3 in Stoke Newington, 11·2 in Wandsworth, 12·5 in St. George Hanover-square, 12·7 in Lewisham (excluding Penge), and 13·0 in Hampstead; the highest rates were 19·4 in Woolwich, 19·5 in St. Saviour Southwark, 19·6 in St. Luke, 20·0 in Limehouse, 20·5 in Holborn, 21·7 in St. Martin-in-the-Fields, and 22·4 in St. George-in-the-East. During the four weeks of November 540 deaths were referred to the principal zymotic diseases in London; of these, 1 resulted from small-pox, 85 from measles, 50 from scarlet fever, 186 from diphtheria, 55 from whooping-cough, 83 from enteric fever, 1 from an ill-defined form of "fever," and 79 from diarrhœa. These 540 deaths were equal to an annual rate of 1·6 per 1000, against 3·1, 1·9, and 1·6 in the preceding three months. No fatal case of any of these diseases was recorded last month in St. Saviour Southwark; in the other sanitary areas they caused the lowest death-rates in Kensington, Marylebone, Holborn, City of London, Mile End Old Town, and Lee; and the highest rates in Strand, Bermondsey, Rotherhithe, Battersea, Greenwich, Woolwich and Plumstead. Only 1 fatal case of small-pox was registered in London during the month under notice, the corrected average in the corresponding periods of the preceding ten years being 15; this case belonged to Paddington sanitary area. The 85 deaths referred to measles were as many as 127 below the corrected average number; among the various sanitary areas this disease showed the highest proportional fatality in Hampstead, Greenwich, Lewisham, Woolwich, and Plumstead. The 50 fatal cases of scarlet fever were less than half the corrected average number; this disease was proportionally most fatal in Fulham, Stoke Newington, and Rotherhithe sanitary areas. The 186 deaths referred to diphtheria exceeded by 37 the corrected average number; among the various sanitary areas this disease showed the highest proportonal fatality in Paddington, Fulham, Hackney, Strand, Bethnal-green, Bermondsey, Battersea, Camberwell,

MONTHLY ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON—NOVEMBER, 1894.

(Specially compiled for THE LANCET.)

Sanitary areas.	Estimated population in the middle of 1894.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,349,166	20	1279	920	2	473	19	18	426	2	3159	9·5	1	85	50	186	55	—	83	1	79	540	1·6	5078	15·2	129
West Districts.																										
Paddington	121,583	4	21	26	—	3	—	—	6	—	60	6·4	1	1	—	9	1	—	—	—	1	13	1·4	123	13·2	105
Kensington	167,350	—	15	21	1	17	1	—	8	—	63	4·9	—	—	2	3	—	—	4	—	1	10	0·8	178	13·9	183
Hammersmith	105,696	—	24	24	—	8	—	1	5	—	62	7·6	—	—	—	2	4	—	2	—	2	10	1·2	129	15·9	182
Fulham	110,993	—	48	31	—	3	1	—	12	—	95	11·2	—	2	5	7	1	—	1	—	—	16	1·9	130	15·3	103
Chelsea	99,052	—	21	23	—	13	—	2	11	—	75	9·9	—	—	1	4	1	—	4	—	2	12	1·6	108	14·2	136
St. George Hanover-square	75,033	—	17	8	—	15	—	—	2	—	42	7·3	—	—	1	1	1	—	1	—	2	6	1·0	72	12·5	83
Westminster	54,414	—	4	7	—	8	—	—	3	—	22	5·3	—	—	—	2	1	—	1	—	1	5	1·2	56	13·4	97
St. James Westminster	23,571	—	7	2	—	7	1	1	1	—	19	10·5	—	—	1	1	—	—	1	—	—	3	1·7	29	16·0	194
North Districts.																										
Marylebone	138,554	7	41	24	—	24	1	1	13	—	111	10·4	—	—	—	6	1	—	1	—	1	9	0·8	158	14·9	100
Hampstead	75,443	1	10	8	—	10	—	1	2	—	32	5·5	—	9	—	—	—	—	2	—	1	12	2·1	75	13·0	170
St. Pancras	233,739	2	105	38	—	28	1	1	41	—	216	12·0	—	6	4	5	4	—	8	—	2	29	1·6	318	17·7	143
Islington	331,900	1	124	46	—	29	—	1	32	—	233	9·2	—	—	4	6	11	—	6	—	7	34	1·3	364	14·3	112
Stoke Newington	34,172	—	9	6	—	2	—	—	1	—	18	6·9	—	1	2	—	—	—	1	—	—	4	1·5	27	10·3	102
Hackney	211,493	—	56	52	—	33	2	1	24	—	168	10·4	—	10	2	14	1	—	3	—	4	34	2·1	229	14·1	136
Central Districts.																										
St. Giles	38,144	—	11	4	1	6	—	—	4	—	26	8·9	—	—	—	—	1	—	1	—	1	3	1·0	45	15·4	115
St. Martin-in-the-Fields	13,783	—	—	3	—	2	1	—	2	—	8	7·6	—	—	—	—	—	—	—	—	1	1	1·0	23	21·7	400
Strand	23,179	—	5	3	—	4	1	—	1	—	14	7·9	—	1	—	3	—	—	—	—	—	4	2·3	34	19·1	211
Holborn	32,438	—	2	2	—	2	—	—	6	—	12	4·8	—	—	—	1	1	—	—	—	—	2	0·8	51	20·5	186
Clerkenwell	65,312	—	17	12	—	5	—	—	4	—	38	7·6	—	—	1	1	1	—	2	—	1	6	1·2	81	16·2	126
St. Luke	41,168	—	5	4	—	4	—	—	5	—	18	5·7	—	—	1	1	2	—	—	—	—	4	1·3	62	19·6	100
City of London	34,832	—	4	2	—	5	—	—	3	—	14	5·2	—	—	—	—	—	—	1	—	1	2	0·7	40	15·0	100
East Districts.																										
Shoreditch	123,186	1	31	30	—	11	1	—	14	—	88	9·3	—	4	—	6	—	—	—	—	2	12	1·3	147	15·6	107
Bethnal Green	129,840	—	35	53	—	10	—	2	27	—	127	12·8	—	—	3	9	1	—	3	—	5	21	2·1	191	19·2	151
Whitechapel	75,498	1	20	11	—	5	—	1	8	—	46	7·9	—	—	1	4	—	—	—	—	—	5	0·9	94	16·2	125
St. George-in-the-East	45,360	—	12	12	—	7	—	—	7	—	38	10·9	—	—	1	3	—	—	—	—	3	7	2·0	78	22·4	122
Limehouse	57,000	—	27	16	—	10	—	—	2	—	55	12·6	—	—	—	2	1	—	2	—	—	5	1·1	89	20·4	133
Mile End Old Town	108,242	—	33	25	—	10	—	—	6	—	74	8·9	—	—	1	3	1	—	1	—	—	6	0·7	119	14·3	79
Poplar	170,217	—	48	46	—	36	—	—	26	—	156	11·9	—	3	1	5	—	—	7	1	4	21	1·6	200	15·3	104
South Districts.																										
St. Saviour Southwark	26,712	—	5	3	—	1	—	—	1	—	10	4·9	—	—	—	—	—	—	—	—	—	—	—	40	19·5	129
St. George Southwark	60,060	—	11	16	—	7	—	—	4	—	38	8·2	—	—	—	1	3	—	1	—	1	6	1·3	73	15·8	128
Newington	118,512	—	45	25	—	4	—	—	16	—	90	9·9	—	—	—	1	5	2	1	—	2	11	1·2	153	16·8	160
St. Olave Southwark	12,984	—	5	3	—	3	—	—	1	—	12	12·0	—	—	—	—	—	—	—	—	1	1	1·0	16	16·1	162
Bermondsey	84,053	—	49	18	—	5	—	—	5	—	77	11·9	—	—	—	3	6	1	—	—	3	16	2·5	116	18·0	126
Rotherhithe	40,365	2	49	13	—	5	2	—	9	—	82	26·5	—	—	—	3	2	—	1	—	4	10	3·2	54	17·4	115
Lambeth	282,574	—	72	66	—	28	5	2	28	1	202	9·3	—	—	—	4	15	4	2	—	5	30	1·4	322	14·9	125
Battersea	161,558	—	67	43	—	25	—	2	18	—	155	12·5	—	—	—	1	10	6	5	—	7	29	2·3	163	13·2	153
Wandsworth	179,518	—	53	37	—	31	1	—	14	—	136	9·9	—	—	—	1	5	1	7	—	1	15	1·1	154	11·2	126
Camberwell	248,893	1	62	71	—	13	—	1	21	—	169	8·9	—	2	—	1	25	3	3	—	8	42	2·2	287	15·0	101
Greenwich	173,128	—	54	46	—	14	—	1	22	—	137	10·3	—	22	2	4	3	—	6	—	1	38	2·9	217	16·3	156
Lewisham (excluding Penge)	79,903	—	9	9	—	7	1	—	7	—	33	5·4	—	6	—	—	1	—	1	—	2	10	1·6	78	12·7	129
Woolwich...	42,309	—	7	10	—	1	—	—	2	—	20	6·2	—	10	1	5	—	—	—	—	2	18	5·5	63	19·4	184
Lee	38,172	—	8	1	—	7	—	—	—	—	16	5·5	—	—	1	1	—	—	—	—	—	2	0·7	28	9·6	83
Plumstead	59,233	—	31	14	—	3	—	—	2	1	51	11·2	—	8	—	7	—	—	1	—	—	16	3·5	64	14·1	85
Port of London	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 41 cases of membranous croup.

† Including deaths from membranous croup.

and Woolwich. The 55 fatal cases of whooping-cough were little more than a third of the corrected average number; the mortality from this disease showed no marked excess last month in any of the sanitary areas. The 84 deaths referred to different forms of "fever" were 10 above the corrected average number; this disease was proportionally most fatal in Chelsea, Poplar, Wandsworth, and Greenwich sanitary areas. The 79 fatal cases of diarrhœa slightly exceeded the corrected average number. In conclusion, it may be stated that the mortality in London during the month under notice from these principal zymotic diseases was no less than 30 per cent. below the average.

Infant mortality in London during November, measured by the proportion of deaths under one year of age to registered births, was equal to 129 per 1000, and was below the average. Among the various sanitary areas the lowest rates of infant mortality were recorded in St. George Hanover-square, Westminster, Mile End Old Town, Lee, and Plumstead; and the highest rates in Kensington, St. James Westminster, St. Martin-in-the-Fields, Strand, Holborn, and Woolwich.

THE SERVICES.

INDIA AND THE INDIAN MEDICAL SERVICES.

THE services of Surgeon-Captain C. E. L. Gilbert (Bengal) are replaced at the disposal of the Military Department, and the services of Captain J. A. Wyllie, Superintendent, Army Schools, Madras, at the disposal of the Commissioner of Burma for employment as Cantonment Magistrate of Rangoon. Surgeon-Captain A. W. T. Buist-Sparks is appointed, until further orders, to do general duty at the Presidency. Surgeon-Captain J. Jackson, I.M.S., takes over charge of the Central Gaol, Hyderabad. Surgeon-Captain Holyoake, A.M.S., is struck off the strength of the Bombay Command. The undermentioned officers of the Army Medical Staff, expected from England for duty, have been posted to the Bombay Command: Surgeon-Captain Austin, in succession to Surgeon-Lieutenant-Colonel Barrow, and Surgeon-Major Trevor, in succession to Surgeon-Major Peterkin.

NAVAL MEDICAL SERVICES.

Fleet-Surgeon James Hamilton Martin, D.S.O., has been promoted to the rank of Deputy-Inspector-General of Hospitals and Fleets in Her Majesty's Fleet.

The following appointments are announced:—Staff-Surgeon W. J. Brown, to the *Brisk*, undated. Surgeons: O. S. Fisher, to the *Pioneer*; H. Marriott, to the *Wild Swan*; J. C. Ferguson to the *Duke of Wellington*; Percy V. Jackson, to the *Brisk*; and Hamilton Meikie, to the *Excellent*.

VOLUNTEER CORPS.

Artillery: 1st Devonshire (Western Division, Royal Artillery): Surgeon-Lieutenant W. Hodgson, M.B., to be Surgeon-Captain. *Rifle:* 1st (Cumberland) Volunteer Battalion the Border Regiment: Brigade-Surgeon-Lieutenant-Colonel C. S. Hall resigns his commission; also is permitted to retain his rank and to continue to wear the uniform of the Battalion on his retirement. 3rd Volunteer Battalion, the Gordon Highlanders: James Middleton, M.B., to be Surgeon-Lieutenant. 2nd (Hertfordshire) Volunteer Battalion, the Bedfordshire Regiment: Surgeon-Lieutenant H. E. Ambler resigns his commission. 7th (Isle of Man) Volunteer Battalion, the King's (Liverpool) Regiment: Surgeon-Lieutenant A. Woods, M.D., resigns.

VOLUNTEER MEDICAL STAFF CORPS.

The Glasgow Companies: Thomas Kerr Bell, M.B., to be Quartermaster.

DEATHS IN THE SERVICES.

Deputy-Inspector-General of Hospitals and Fleets George Irwin Willes (Retired List) on the 6th inst. He joined the Naval service in 1844 as surgeon, and obtained the M.D. degree from the University of St. Andrews in 1862. In 1867 he was promoted to the rank of Fleet Surgeon, and in 1877 to Deputy-Inspector-General of Hospitals and Fleets.—Surgeon-Major R. de B. Riordan (Retired List), Army Medical Department, died at Newcastle-on-Tyne on the 3rd inst. He joined the Army in 1860; became surgeon in 1873; surgeon-major in 1875; and retired in 1891. He served in the Egyptian War of 1882 as senior medical officer with the advanced force which landed at Alexandria on July 18th (medal and Khedive's star).

A telegram from Lake Nyassa announces the death of Elrington Francis Simeon McKay, Surgeon to H.M.S. *Pioneer*, who was killed by a lion while out on a shooting expedition.

VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The distribution of prizes took place on Saturday last at the Banqueting Hall, Crosby Hall, when Major-General Lord Methuen, C.B., C.M.G., Commanding the Home District, was present, and supported Major Andrew Maclure, V.D., the President, who was in the chair. The report presented by the Chief Instructor, Surgeon-Major Stokes, of the London Rifle Brigade showed the year to have been a most successful one; all the classes had been well attended, and a larger number of officers had passed than ever.

Major-General Lord Methuen, who, as the president stated, had himself received an ambulance certificate, said they sometimes heard that the Medical Department was not so much appreciated as it might be. He thought that was an utterly false notion. He could assure them that in the Army there was no department looked upon with greater regard or that was watched with greater anxiety than that department. With regard to the ambulance portion of the mobilisation scheme, he said it was a great enterprise. They had to provide for 20,000 sick and wounded in case of an invasion, and no one could have drawn out a better scheme than Surgeon-Colonel Hamilton.

The official inspection and examination of the present class took place at the headquarters of the London Rifle Brigade, Bunhill-row, on Monday last. The examiners were Surgeon-Major H. J. Robbins, Surgeon-Captains M. Yarr, A.M.S., R. A. Bostock, Scots Guards, and Surgeon-Lieutenant W. J. Smythe, attached, Grenadier Guards. Two strong companies were paraded under the command of Surgeon-Major H. F. Stokes, Senior Medical Officer, Instructor, and after the inspection there was a march past, stretcher and handseat drill was performed, and the "wounded" treated. At the conclusion Surgeon-Major Robbins made a speech, congratulating the officers of the school upon the way the men had been instructed, and stated that he should have much pleasure in recommending the whole class for Army ambulance certificates. The next class will be held at the headquarters of the Queen's Westminster Rifle Volunteers by permission of Colonel Howard Vincent, C.B., M.P., Commanding, at 7.30 P.M. on Thursday, Feb. 7th, 1895.

ROYAL NAVAL HOSPITALS.

A correspondent, writing to the *Army and Navy Gazette*, calls attention to the fact that ice is not allowed in the naval hospital at Bermuda after Oct. 1st, when the winter season is supposed to commence, unless in exceptional cases of sickness. He adds that at the time of his writing the temperature was 85° F. in the shade and the price of ice is 4*s.* 8*d.* per cwt. At such a temperature it might, no doubt, be necessary and economical to provide ice for the preservation of milk, butter, &c., and for the supply of iced drinks. Still, if the provision of ice as an ordinary hospital supply is to be made a subject of regulation at all in a climate like that of Bermuda, it seems a natural and common-sense view that its issue should be governed by season. As it is, moreover, in the power of any medical officer to order ice for any patient for whom he considers it essential, there does not seem to be so much to complain of. We may assume that the senior medical officer in charge of the naval hospital at the station is empowered to recommend what he deems necessary in exceptional conditions of season.

AGE-RETIREMENT IN THE ARMY MEDICAL SERVICE.

Adverting to a proposal that has been put forward for extending the ages for compulsory retirement in the three highest grades of the Army Medical Service, we may say that, in our opinion—and we strongly suspect in that of the service generally—it would be most detrimental to the interest of medical officers. We can only repeat what we said in THE LANCET of Oct. 13th, that the effect of every such extension in the upper ranks must inevitably be to retard promotion in the lower, and therefore injurious to the prospects of all the medical officers except the individuals directly benefited. So far from the period of age-retirement being extended generally for the upper ranks, it should be

severely restricted to exceptional cases in which such extension is clearly justified in the interest of the public service.

The *Broad Arrow* states it is rumoured that it is under consideration to abolish two Surgeon-Colonels' appointments. The two commands are reported to be Halifax and Hong-Kong. Our contemporary also calls attention to an important addition to the Regulations regarding medical officers, which appears in Paragraph 24, Section XVI., Queen's Regulations, 1894. It is to the effect that when a medical officer is on the line of march or at manœuvres with an infantry unit he shall be mounted, and if not entitled by rank to forage will be granted such allowance for hiring a horse as may be admissible under the Allowance Regulations. Heretofore medical officers have been refused a horse on the march.

Correspondence.

"Audi alteram partem."

"CARDIAC FAILURE UNDER THE INFLUENCE OF CHLOROFORM."

To the Editors of THE LANCET.

SIRS,—Three successive numbers of THE LANCET have contained the record of four cases of unquestionable cardiac failure under the influence of chloroform. I beg permission to comment briefly upon these deeply interesting and instructive cases. Mr. Alexander Wilson, in his able and lucid paper,[1] records two fatal cases, in which the first indication of danger was the sudden arrest of the heart's action, followed by violent respiratory efforts—a character of respiration, as the writer states, which "seemed to express an extreme desire to get air." This kind of respiration is a well-known and intelligible result of an extreme impediment to the circulation. I have witnessed and recorded[2] several cases of embolism in the pulmonary artery in which extreme dyspnœa was a prominent symptom. One young woman, who was dying with embola in several large branches of the pulmonary artery, said to me, "I feel as if I could not get breath enough." Yet, except over a patch of pulmonary apoplexy in the right middle lobe, the air was heard freely entering the lungs. The blood is the channel by which the vitalising oxygen enters the system, and an arrest of the circulation, whether the result of cardiac failure or of arterial obstruction, causes violent respiratory efforts in response to a cry for air from the nervous centres. The condition is the physiological opposite to the suspension of breathing (apnœa), which results from hyper-oxygenation of the blood. In Mr. Ballard's case[3] the pulse suddenly became imperceptible, the patient took four deep respirations, and then the breathing ceased. In this case evidently there was a primary failure of the circulation, and the chief interest is in the fact that nitrite of amyl on lint, placed over the mouth and nose whilst artificial respiration was performed, had an almost instantaneous effect in restoring first the circulation and then the respiration. The fourth case is described in an annotation in THE LANCET of Dec. 1st. The patient was at a dentist's, but before being touched by the operator she suddenly became ashy pale; the heart's action ceased, but the respiration continued for several minutes. All efforts, which were continued for two hours, failed to restore life. In this case the necropsy showed that the right side of the heart contained no more blood than the left, a clear proof that death was a result of arrested circulation, and not of apnœa. These four cases, the particulars of which have been published in quick succession, would alone suffice to prove that, as Mr. Alexander Wilson very ably maintains, it has been too hastily assumed from the results of experiments on the lower animals that in the human subject "death from chloroform in every instance results from failure of the respiratory function and never from syncope, or failure of the heart's action." No one, I suppose, doubts that chloroform may cause death by a primary arrest of the breathing, but in such cases the phenomena are in striking contrast with those so clearly described in the cases above referred to. Upon one occasion I had the unhappiness of being present when death resulted from the administration of chloroform to a middle-aged woman, who was undergoing the operation of tracheotomy for the relief of frequently recurring spasm, the result, it was believed, of an aneurysm pressing on the vagus nerve. The operation was skilfully and quickly performed, when just as the tube had entered the trachea the breathing suddenly stopped. No time was lost in performing artificial respiration, which, however, entirely failed to restore natural breathing. I stood by the anæsthetist and had my finger on the radial artery during the whole of the proceeding. Not only was the pulse perceptible for a period of about two minutes after the breathing had ceased, but during the first half of the time it had the full throbbing character which is invariably associated with the first stage of apnœa; and if the chest had been opened immediately after death, unless, which is improbable, the distribution of blood had been altered by artificial respiration, the right cavities of the heart and the entire venous system would have been found distended, while the left cavities and the arteries were comparatively empty. The contrast between the two modes of death from chloroform may be briefly summarised as follows. As a result of cardiac failure the pulse and the heart's action are imperceptible, while the respiration is for a time deep and full. After death there is an equal distribution of blood on the two sides of the heart. A primary suspension of breathing (apnœa) has for its immediate consequence a full and throbbing pulse and after death distension of the right side of the heart. The correct treatment of the two classes of cases cannot be identical. To trust to artificial respiration alone in a case of primary cardiac failure is as faulty as it would be to neglect artificial respiration and to give only cardiac stimulants when death is threatened by a primary apnœa. It seems well to emphasise the fact that Mr. Robert Ballard's patient was rescued from his alarming condition by the combined influence of nitrite of amyl and artificial respiration. The latter alone would probably have been ineffectual, while without it the vapour could not have entered the lungs. Venesection in a case of cardiac failure and syncope is clearly contraindicated, while in cases of suspended breathing (apnœa) venesection, by lessening the paralysing overdistension of the right side of the heart and the venous system, is an influential means of restoring the circulation. Finally, Sirs, I agree with the writer of your annotation that it is undesirable to employ so potent an agent as chloroform for an ordinary dental operation.

I am, Sirs, yours faithfully,

Savile-row, Dec. 3rd, 1894. GEORGE JOHNSON.

[1] THE LANCET, Nov. 17th, 1894.
[2] Medical Lectures and Essays, p. 541 et seq.
[3] THE LANCET, Nov. 24th, 1894.

"LUNACY IN HOSPITALS."

To the Editors of THE LANCET.

SIRS,—In an article in THE LANCET of Dec. 8th, commenting on the question of lunacy in hospitals in connexion with an inquest recently held, you say: "It should therefore be understood that, serious as would be the responsibility in the case of many hospitals if they were called upon, like the London Temperance Hospital, to equip isolation wards for delirious patients, there is still more difficulty behind of which the coroner of St. Pancras and his jury took no account—namely, that were they equipped their use would be greatly restricted and in many cases wholly prevented by the operation of the law." Without desiring to assume the position of a competent critic, I would still venture to ask the question whether possibly the condition of affairs is not just the reverse, and every assistance supplied by the Legislature for dealing with such cases. Section 8 of the Lunacy Amendment Act runs thus: "In the case of urgency, either for the welfare of a person (not a pauper) alleged to be a lunatic, or for the public safety, that the alleged lunatic should be forthwith placed under care and treatment, he may be received and detained in any asylum, licensed house, or as a *single patient* upon an *urgency order* made (if possible) by the husband or wife, or by a relative of the alleged lunatic, accompanied by one medical certificate under the hand of a medical practitioner." The Act then goes on to direct that the signature of a relative is not absolutely necessary, but that the person in charge of the patient may sign, provided a statement is appended (in writing) as to the reason why no relative acts. Further, it is enacted that within seven days from the date of such urgency order the usual steps shall be taken for certifying the case in the ordinary way. Power is

therefore given by the Act to those in charge of a patient to place that patient under legal restraint with the utmost expedition should the necessity arise, and also a period of seven days is allowed to the relatives to decide whether the alleged lunatic shall be removed to a private asylum or be treated as a pauper. It seems to me, therefore, that the recommendations of the coroner's jury at the inquest in question were both apposite and distinctly to be commended to the attention of the authorities referred to.

I am, Sirs, your obedient servant,

Hampstead, Dec. 10th, 1894. W. CODE ADAMS.

*** Our correspondent has evidently overlooked that the detention provided for in the section which he quotes is detention in an institution for lunatics or in a licensed house, for a "single patient" cannot be received elsewhere. This was the exact point of our article. Section 231 of the Act quoted by our correspondent, subsection 9, provides expressly that "no lunatic shall be received in any hospital unless the same has been registered before the passing of this Act or is registered under a provisional or complete certificate by virtue of this Act."—ED. L.

CHILD MORTALITY.

To the Editors of THE LANCET.

SIRS,—I am surprised to find in your leading article on this subject in THE LANCET of Dec. 1st that you apply to my use of "coefficients" the opprobrious epithet "meaningless," especially as in my "Youngest England," which you criticise, I say: "These are the coefficients by which to multiply the death-rates at all ages in order to obtain the death-rates of the group." My method of obtaining them is set forth by the following formula:—

$$\frac{\text{Proportion of deaths}}{\text{Proportion of population}} = \text{Coefficient of incidence.}$$

If the deaths were equally distributed the coefficient of incidence would in each group amount to unity. We might regard this as fair, although in an ideal distribution there should be no deaths at all in the two earlier groups. But what do we actually find? An immense preponderance of deaths in the earliest group of the three; so that, although it numbers only about one-eighth of the total population, its proportion of deaths falls little short of two-fifths, and it has accordingly a death-rate at least three times what it should be. This, however, as I have shown, is not the worst feature of the case, for the coefficient of incidence upon the age-group in question (0–5) has evinced a tendency to increase whenever there has been no extraordinary visitation (such as influenza) affecting other groups most. Thus, in London for the three quinquennia extending from 1876 to 1890, the coefficients of incidence of mortality from all causes upon this group were in succession 3·279, 3·297, and 3·355. And of late years a decline in the coefficient of incidence has been accompanied by a rise in the general death-rate, so that the death-rate of this particular age-group has also risen, notwithstanding. Thus, in the quinquennium 1886–90 the death-rate of children under five years of age in London averaged 67·16 per 1000 of that group, but in the three years 1891–93 the mean death-rate of the group was no less than 68·45. I do not dispute the figures which you give for England as a whole; but I would observe that you go back thirty years, whilst I only go back eighteen, and that whereas you make the age group (0–5) to have progressed more favourably between the second and third decennia than between the first and second, the reverse was the case when comparison is made between the death-rate of the group and that of the country generally; for the latter declined twice as fast in the second period as in the first, whilst the death-rate of the age group declined barely 43 per cent. faster than it had previously done. Besides, to show that the tendency has recently been in the wrong direction, I may mention that the death-rate of the age group in question (0–5) was in 1881–85 56·6, in 1886–90 it rose to 57·0, and in 1891 to 59·0, only receding to 57·0 in 1892. There is not much decline visible here, even under your own method of dealing with the question. An increase in the despised "coefficient" is bound to come to the surface sooner or later. Sanitarians must not rest satisfied until not only the general death-rate but the coefficients of incidence upon the earlier age-groups have reached a minimum. The increase of the coefficient belonging to the more advanced we can regard with equanimity, though tinged with regret; but there is something hideously wrong in an increased incidence of mortality upon young children. As some doubt has been thrown upon Mr. Asquith's assertion that infant mortality has increased, I beg to inform your readers that the mean annual numbers of deaths of infants in England under one year of age per 1000 births were for the three quinquennia extending from 1876 to 1890 as follows: 1876–80, 144; 1881–85, 139; and 1886–90, 145. For 1891 they were 149, and for 1892 they were 143. I cannot see that the right honourable gentleman was far wrong.

A fact of still greater importance to the future of the Anglo Saxon race is that the proportion of infants completing the first year of life is for England approximately represented by the following mean annual rates: 1876–80, 30·3; 1881–85, 23·9; and 1886–90, 26·9 per 1000 of the population. In 1891 the proportion was 26·7, and in 1892 it was only 26·0. There have been fewer births, as well as a higher death-rate among those born.

In conclusion, I beg to restate my conviction that whatever decline has occurred in the actual death-rate of children under five years of age is due almost wholly to the improved condition of the country generally, which makes it a safer place to live in now than formerly. The increased incidence of mortality upon this group as compared with others does not point to any improvement in its special condition either as regards stamina or immediate environment.

I am, Sirs, yours faithfully,

Kingston-on-Thames, Dec. 10th, 1894. D. BIDDLE.

*** We still feel bound to protest against Mr. Biddle's term "coefficients of incidence," both because the term conveys no definite meaning and because the figures he dignifies with this name entirely misrepresent the true incidence of mortality. We propose, however, to take an early opportunity to return to this subject.—ED. L.

"THE ANTITOXIN TREATMENT OF DIPHTHERIA."

To the Editors of THE LANCET.

SIRS,—The letter of Dr. Mules, embodying, as it does, many of the doubts and fears which have been expressed with reference to the antitoxin treatment of diphtheria, is calculated to throw so much discredit upon this important new departure in medicine that I venture to ask you to allow me a little space to comment upon some of the points which it raises. The first is as to the strength of the preparation used. Of those at present available no two are alike in this respect, and it appears to be a matter of considerable importance that some criterion should be agreed upon. Probably no better one for practical purposes can be found than that which is adopted in laboratory practice—viz., the proportion of the body weight in which a given sample will neutralise the effect of a fatal dose of living diphtheria microbes. This factor should be furnished with every supply, as it affords at least an approximate estimate of the relative strengths of two or several samples. It would then become possible to adjust the dose, with a fair amount of accuracy, to the severity of any given case. Whether the body weight of the patient should be taken into account is at present a moot point, but, inasmuch as the antitoxin is a natural product, this point is of considerably less consequence, since it is no matter if an excessive dose be administered. In this point lies the great difference between the tuberculin and the antitoxin treatments. In the former a morbid product is taken, with the idea of rendering the life of the organisms which produce it impossible by its excess; in the latter the remedy made use of is the one which Nature provides against a deadly organism, and which is obtained from blood at least as normal as the human blood in a patient who has had whooping-cough, scarlet fever, measles, and the other non-recurrent zymotics. The necessity for bacteriological examination is shown by the fact that in the cases recorded by Dr. Mules there is not only no absolute confirmation of the diagnosis (though I do not doubt its correctness), but also an entire lack of information as to other organisms which were present, and which may have had an important influence in bringing about the fatal result. No one, I think, supposes that every case of diphtheria will be cured, but if

the mortality can be reduced to one-half of its present amount the gain will be enormous. My own experience of the remedy is small, but so far most satisfactory. I confirmed the diagnosis by bacteriological examination, and the case, although it would probably not have proved fatal, showed a very marked contrast to one treated a few days before by the ordinary methods in the rapidity of recovery. It has been usual to abstain from all other treatment during the administration of antitoxin. I am by no means satisfied that this is the correct method of procedure. In cases where many streptococci and micrococci are found to be present I believe that great advantage must result from the simultaneous employment of remedies, such as iron and quinine, which fortify the system generally against the attacks of pyogenic and septicæmic microbes. Apologising for the length of this communication, I am, Sirs, yours faithfully,

EDWARD C. BOUSFIELD.

Old Kent-road, S.E., Dec. 10th, 1894.

"THE BARIUM WATERS OF LLANGAMMARCH AND THE THERAPEUTICS OF BARIUM SALTS."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Dec 1st Dr. Bezly Thorne states that the mineral spring of Llangammarch "is unique in this country, and, indeed, in Europe, as yielding barium in proportions suitable for effectual internal administration." With reference to this statement, would you allow me to state that in the vicinity of Shrewsbury there is a mineral spring of ancient renown which contains barium in considerably larger proportions? In the analysis published in THE LANCET of Nov. 24th the Llangammarch spring is stated to contain 6·7 grains of barium chloride per gallon, whilst the Shrewsbury spring to which I allude is stated, in an elaborate analysis (dated March, 1893) by T. Blunt (county analyst and Examiner in Chemistry to the Pharmaceutical Society), to contain as much as 15·9 grains of barium chloride per gallon. Personally, I am inclined to believe that barium salts are a more common ingredient in mineral springs in certain districts than is generally imagined; and that this is not more generally recognised may be due to the fact that barium salts have not as a rule been specially looked for in water analysis. It is from the mineral districts of Shropshire that the greater portion of the baryta used in commerce in this country is obtained, and I believe that it would not be difficult in this county to indicate more than one barium-containing spring. Before deciding upon the therapeutic value of a barium water it would be well to consider how far such a water may possibly be a double-edged weapon. Barium chloride in natural solution is liable to be accompanied by another soluble salt of barium—viz., barium carbonate. Barium chloride, although undoubtedly possessing valuable properties in medicinal doses, is stated in books to be a powerful poison in large doses, and barium carbonate, in the shape of powdered witherite, was formerly much esteemed as a rat poison.

I am, Sirs, yours truly,

Shrewsbury, Dec. 4th, 1894. W. N. THURSFIELD, M.D.

*** The statement of Dr. Thursfield that barium carbonate is a soluble salt (that is, in water) is not quite correct. It is soluble, however, in water containing an excess of carbonic acid gas; but in the barium waters mentioned in the original article (THE LANCET, Nov. 24th, 1894), besides those of Llangammarch, carbonic acid was practically absent. Carbonate of barium dissolves probably with the formation of barium chloride in the gastric juices, and in this manner doubtless acts as a poison.—ED. L.

THE UNIVERSITY OF GLASGOW FINAL EXAMINATIONS.

To the Editors of THE LANCET.

SIRS,—As a graduate of Glasgow University I beg to thank Dr. MacAlister for his observation that: "In the system pursued in Scotland it was perfectly natural that the examiners should know something about some of the candidates that came before them. In Glasgow they heard it said again and again by examiners, 'Oh we know this person has been working well; we know that he is a capital man and that there must have been something wrong with him.' The only assumption they could make was that the previous knowledge of the examiners of the candidates had its effects." Reading Dr. MacAlister's observation along with Dr. Gairdner's speech it is evident that a candidate who had done well in his written examination, but who had the double misfortune not to be examined orally by the same examiner who corrected his written paper and also to be seized with panic—that candidate would not get the same sympathetic examination in his oral examination, and would probably from this purely accidental circumstance fail. In this connexion I cannot help remembering how, when I was a student, one of the Western Infirmary surgeons, who was also a professor and examiner in the University, had about ninety men in his clinical class, while another Western Infirmary surgeon, with the same number of beds and equal teaching facilities, but who was not an examiner, had only seven men in his clinique. To my mind this shows unmistakably the opinion the students formed as to the advantage to be gained by being known, if even slightly, to an examiner as a former student of his. To be just, either every candidate should be examined by his own teacher or no candidate should, and in either case the same examiner should correct all a man's work—i.e., written, practical, operative, and oral; for Dr. Gairdner himself declares that his average marks in the written were fifty-six, and his fellow-examiner's average marks were fifty-nine and a quarter, while in the clinical Dr. Gairdner gave a higher average than Dr. Anderson. The advantage of being examined by Dr. Gairdner in the clinical, and by Dr. Anderson in the written, would therefore mean passing to no inconsiderable number of candidates who now fail. Hoping to see the element of chance eliminated from the future examinations in Glasgow University,

I am, Sirs, your obedient servant,

Dec. 10th, 1894. A GLASGOW GRADUATE.

TYPHOID FEVER AT NEWPORT.

To the Editors of THE LANCET.

SIRS,—Newport, Isle of Wight, is reaping the fruit of its unwise conduct in the epidemic of typhoid fever that has been and is prevailing there. The foolish notion of trying to conceal the existence of an epidemic of typhoid fever has been most disastrous. All the measures that have now been taken or that are now about to be taken, such as a pure water-supply, notification of infectious disease, provision of an isolation hospital, a good drainage system, and a proper mode of disposal of their sewage,—all these would have been provided some years ago but for the attitude of the then authorities, which nothing but the ruin of the trade of the town could apparently move. Now the magistrates and the County Council avoid Newport and meet at Ryde, and the Queen has, I understand, seriously considered the advisability of putting off her usual Christmas visit to Osborne. It is quite certain that Her Majesty will not go there if the epidemic shows any signs of spreading between now and December 19th. Already all communication between Osborne and Newport has been interdicted, and this is not without its important meaning. There were many things which were supplied to Osborne from Newport, such as meat, milk, vegetables, and butter, as well as carriages and horses. All these will now be got from Ryde. The whole of the Isle of Wight may suffer from the fault of Newport, for probably in the summer there will be a large falling-off in the number of visitors. Cowes in particular has good reason to object to Newport, as the inhabitants of Cowes have long suffered from having the sewage of Newport sent down to them in the River Medina. But I am told that Cowes lately has taken its revenge by praying in all the churches and chapels for the plague-stricken town of Newport, and in this way has effectually checkmated the policy of concealment.

I am, Sirs, yours faithfully,

Dec. 11th, 1894. ONE WHO IS WELL INFORMED.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Quarterly Health Report.

DR. NIVEN'S report for the September quarter of 1894 has just been issued. The birth-rate has been somewhat lower than the average for the quarter during the previous three

years, being 31·9 per 1000, against 33·8. It was highest in the Old Manchester Township, the most unhealthy part of the city, where it was 34·5. In North and South Manchester it was 30·8 and 30·9 respectively, and higher than thirty-three great English towns, where it was 29·8. In London the rate was 29·3, in Edinburgh 24·7, in Glasgow 31·2 and in Dublin 28·4. In the quarter 10,223 fresh cases of general sickness were treated at the various public institutions, an average of close on 786 per week, being an increase of 109 on the number treated in the third quarter of 1893, but a decrease of 101 compared with those treated in the second quarter of 1894. Of the total number 1,233 were in-patients of the various hospitals, 7109 were out-patients, and 1881 were visited at their homes. Eight hundred and fifty-two fresh cases of infectious sickness were reported to the medical officer of health, against 912 in the immediately preceding quarter, and 750 the average for the third quarter of the previous three years. Small-pox: 64 cases were reported, against 195 in the previous three months; 4 of them were fatal. It was most prevalent in the Manchester township, where the notified cases equalled a rate of 0·93 annually. In South Manchester it was 0·33, and in North Manchester 0·30. In the twelve notification towns of Lancashire and Yorkshire, with a population of 2,229,690, the reported cases were 117, and were equal to an annual rate of 0·21 per 1000. Liverpool suffered most severely, the attacks equalling a rate of 0·47, while in Hull the rate did not exceed 0·02. London had a rate of 0·43 per 1000 persons living. It is satisfactory to be able to add that no cases of small-pox have been reported here for the last five weeks. Scarlet fever was registered in 553 cases, equivalent to an annual rate of 4·25 per 1000, against one of 3·83 in the quarter immediately preceding, and one of 3·20 the average for the third quarter of the years 1891–93. In the June quarter it was most prevalent in South Manchester, slightly less so in North Manchester, and least so in the unhealthy Old Township. In the September quarter North Manchester bore the chief brunt of the attack, and the rate per 1000 was 4·90. In the Old, or Manchester, Township it was 4·31, and in South Manchester 3·85. In London the rate was 4·16 last quarter, against 4·55, the rate of the one previous. Manchester had a higher rate than the twelve large towns in this part of the country, in which it was 4 per 1000; ranging from 0·90 in Halifax to 7·56 in Liverpool. Diphtheria and Membranous Croup: 103 cases of the former and 6 of the latter were reported. Diphtheria was somewhat less prevalent than in the June quarter, when the rate was 0·97 per 1000, while for the September quarter it was 0·84. The average rate for the third quarter of the previous three years was 0·96. It was most prevalent in North Manchester, where the rate equalled 1·17, while in South Manchester it was 0·78, and in the Manchester Township 0·63. It was 2·47 in London, while in the twelve notification towns it was not more than 0·50. The rate in these towns ranged from 1·11 in Salford, where it was the most prevalent, to 0·07 in Warrington. Enteric fever was less prevalent than usual, 108 cases being reported, against 203 in the corresponding quarter of 1893. The notified cases were equal to an annual rate of 0·91, the average rate in the third quarter of the previous three years being 1·35. It was most prevalent in the Manchester township and least so in South Manchester. In London the rate was 0·65. In the twelve notification towns it was 1·48, ranging from 0·36 in Warrington to 3·03 in Liverpool. Of puerperal fever 8 cases were recorded. "As far as may be judged by the mortality returns measles and whooping-cough do not appear to have been excessively prevalent." Isolation of infectious cases: 370 patients were under treatment at the beginning of the quarter in the various hospitals for such cases. During the quarter 610 more were admitted, being an increase of 102, as compared with the corresponding quarter of 1893. Of these, 622 were discharged cured, 41 died, and 317 remained in hospital; 95 per cent. of the small-pox cases, 71 per cent. of those of scarlet fever, 29 per cent. of those of diphtheria and membranous croup, and 49 per cent. of the enteric fever cases were removed to hospital. Deaths: After making the necessary allowance for "institution deaths," 2379 were recorded for the third quarter of the year, equalling a corrected annual rate of 18·3. In the third quarters of the previous three years the death-rate averaged 21·2 per 1000, so that this year the rate for the quarter was 14 per cent. below the average. In North Manchester it was 13·5, in South Manchester 17·8, and in the Manchester Township it was 23·3. Mortality to five years of age: During the quarter there were 737 deaths of infants under one year of age, and 357 of children from one to five years old. Those of the former equalled a rate of 178 per 1000, against 128 in the previous quarter, and 282 in the third quarter of 1893. In North and South Manchester respectively the rates were 129 and 173, while in the Manchester Township it was 223. The rate of infant mortality in Manchester was higher than that of the thirty-three great English towns by 9 per 1000. In London it was 164, and in the sixty-seven other larger towns of England and Wales 140. Of the total number of deaths in the quarter, 1094 were those of children under five years of age. They equalled an annual rate of 67·0 per 1000 children living at this age. This was 39·8 per 1000 less than in the third quarter of 1893. In North Manchester the rate was 47·4 per 1000, while in the unhealthy area of the Manchester Township it was no less than 85·3. Zymotic death-rate, &c.: The zymotic death-rate equalled 3·02 per 1000, and was lower by 1·31 than the average in the third quarters of the preceding three years. The Manchester Township maintained its unenviable reputation, as its zymotic death-rate was 3·90; while in South and North Manchester the figures were 2·95 and 2·14 respectively. So, too, as regards the mortality from phthisis; for while for the city generally the rate was 1·62 per 1000, it was 2·40 in the Manchester Township, 1·11 in North Manchester, and 1·43 in the southern township. Of deaths from violence 82 were recorded, or 3·4 per cent. of the total mortality.

Registration of Midwives.

This subject was introduced by Dr. Vipont Brown, at the last meeting of the Medico-Ethical Association. In a temperate and able speech he set forth the arguments in favour of registering an improved order of educated midwives, who should be under the control of the medical profession, and who should call in a qualified practitioner in any but natural labour, or when there was a threatening of danger from any cause. The discussion was carried on with less heat than seems customary when this subject is brought forward. An apology for the certificates or pseudo-diplomas issued by some of the hospitals for women was put forward, to the effect that these documents were now reduced to the size of a sheet of notepaper, reminding one of the poor girl who excused her fall from virtue by saying her baby was such a very little one. Some of the speakers pointed out that while the upholders of this registration movement were so anxious for the improved education of the midwife, they showed no such anxiety for the fuller and more practical education of the medical student in the science and art of midwifery, and that, though he was said by some of them to be far more ignorant than the midwives themselves, his aid was to be sought in any case of difficulty or danger. It was said also that the employment of midwives rather than medical men was a question of fee; that more highly educated women would require higher fees than at present; and that there was nothing to prevent an inferior set of unqualified women practising, as at present. The defenders of the registration movement were moderate and conciliatory in tone, and there was an evident feeling on both sides that some understanding should be arrived at. The resolutions passed by the General Medical Council on the 3rd inst. will probably facilitate this.

Bath Tax on Weekly Houses.

At the last meeting of the City Council it was proposed that, in view of the abundant supply of water from Thirlmere, the annual charge of 10*s.* for a fixed bath in "weekly houses" should cease. No doubt it would be a valuable boon in many cases, and sanitarians found themselves in unaccustomed agreement with cottage property-owners. This charge is not made in the case of "quarterly houses." Sir J. Harwood, the chairman of the Waterworks Committee, said the waterworks had cost altogether five and a half millions, of which about one million had been repaid. The Thirlmere works would entail an additional tax on the city of £103,000 per annum, and probably it would rise to £110,000. They had tried to readjust their financial position so as to bring this water to Manchester without additional public burdens, and had practically succeeded. This year they would have about £80,000 towards the £103,000, and hoped next year to have £90,000. He thought in two years the 10*s.* might be reduced to 5*s.* Every cottage house is said to be a loss as to water, which seems probable, for a house of £100 rental pays £5 a year for water, while a £20

house, in which nearly, if not quite, as much may be used, pays 8s. 6d. For the present the resolution was withdrawn.
Dec. 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Presidency of the Royal College of Physicians of Edinburgh.

PROFESSOR GAIRDNER of Glasgow has been re-elected to the Presidential chair at the Edinburgh Royal College of Physicians. The election is made annually, but it is customary for the President to be in office for two years. Professor Simpson of Edinburgh has again been appointed Vice-President.

Preparation of Diphtheria Antitoxin in Edinburgh.

It is understood that arrangements are being made by the committee in charge of the Royal College of Physicians Laboratory for the preparation of antitoxin serum for the treatment of diphtheria. It is expected that a special grant of money will be made by the College for this laudable object; and the hope may be expressed that this is but the beginning of an awakening on the part of those responsible for the laboratory to the importance of bacteriological methods and investigations, as throwing light upon pathological processes and affording means of ultimately successfully grappling with infective processes.

Infective Diseases in Edinburgh.

During the past week the intimations in Edinburgh show 17 fresh cases of small-pox, 55 of scarlet fever, 82 of measles, and one of typhus fever. The deaths included 6 from small-pox, 3 from diphtheria, and 4 from scarlet fever. No fresh cases of small-pox are reported in Leith.

The Edinburgh Water-supply.

A Bill has been prepared which it is proposed to promote in Parliament next session to bring in an additional supply of water from the Tulla. This, as has already been stated here, is regarded generally as much the most satisfactory scheme, and the Edinburgh and District Water Trust have approved the Bill by a majority of 14 votes to 2. The estimated cost is £631,000.

Death of Principal Walley.

Old students of the Royal (Dick) Veterinary College, Edinburgh, and the veterinary profession generally, will learn with regret that Principal Walley has died. In September he went to Jersey on account of his health, so that he has been absent from his college duties this session. Under the principalship of Professor Walley the Royal Veterinary College has markedly advanced, and has become a most efficient and successful training school for veterinarians. The principal was a kindly and unostentatious man, devoted to his profession and to the good of the college with which he was connected, and made many useful contributions to his profession. One of his daughters is married to Professor McFadyean of the Royal Veterinary College, London.

Centenary of the Royal Infirmary, Glasgow.

On Dec. 8th, 1794, the Glasgow Royal Infirmary was opened for the admission of patients, the foundation-stone of the building having been laid two years and a half earlier. It at first accommodated about 150 patients. The staff included four physicians and five surgeons, and its first house surgeon was Dr. John Burns, afterwards the well-known professor of surgery in the University. Nothing, so far, has been done to mark the importance or interest attaching to this hundredth anniversary of the opening of the Royal Infirmary; but, notwithstanding the apparently desperate condition of the finances of the institution, it might be suggested that this is a fitting occasion of undertaking the demolition and reconstruction of that part of the buildings known as the "front house" or "medical house," the part opened exactly 100 years ago. That part of the infirmary is certainly not up to the modern ideal of hospital construction; and, indeed, it might be taken as an axiom that if a building has served as a home for disease of literally every form (fevers, cholera, &c.) for a whole century, it has done well. Little more can be expected of any erection. If the directors of the Royal Infirmary enter upon this task energetically there is no doubt at all of the support they would obtain from the charitable public of Glasgow.

The Victoria Infirmary.

From the annual report of this infirmary I learn that in the past year it accommodated and treated 1372 patients, whose average period of residence was thirty days. The cost of every occupied bed was £54 19s. 6d., the cost per patient £4 16s. 6d. The financial position of the infirmary, unlike that of the other large infirmaries, is satisfactory; there was an apparent deficit of £339, but as the institution's share of the recent Hospital Sunday collection had not been received, there was the certainty that the year would close with a surplus. This infirmary represents an expended capital of about £75,000, besides which it has £25,000 invested—truly a marvellous record for seven years' work. Part of the Victoria Infirmary's success is no doubt due to the enthusiastic support given to it by the working classes themselves, and this again is due to the fact that workmen are represented to a very considerable extent on the board of governors.
Dec. 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

National Hospital for Consumption.

THIS institution, situated near Newtown Mount Kennedy, in the county of Wicklow, is rapidly progressing towards completion. Already the three blocks are almost roofed in, and the question of heating and ventilation has occupied the serious attention of the board, and when finished the hospital will in this respect be provided with as nearly perfect a system as it is possible for science to suggest and skill to execute. It is hoped that a suitable response may be received to the appeal for funds not only from Dublin and its immediate neighbourhood, but also from the more distant parts of Ireland, as will secure a fair trial for this the first serious attempt in Ireland to grapple with the terrible scourge of phthisis. Mrs. Cairnes has given a donation of £500 to the funds of the institution and will subscribe annually a sum of £25.

Richmond Lunatic Asylum.

In the Commission Court last week Michael Dowling, an attendant in the Richmond Lunatic Asylum, was indicted for the wilful murder of Denis Kinsella, an insane patient of the institution. Dr. John Donnellan, senior assistant medical officer, on Sept. 26th examined Kinsella, and found his breast-bone injured and some ribs fractured; he died the next day. Mr. Connolly Norman, medical superintendent, made a post-mortem examination, and found the breast-bone broken and three ribs on one side, and eight on the other broken; there was also rupture of the liver. In his opinion these injuries could not have been self-inflicted. The charge of murder was withdrawn towards the termination of the case, "manslaughter" being substituted. The jury disagreed, and the prisoner will be put on his trial at the next Commission.

Maryborough District Lunatic Asylum.

Mr. T. S. McClaughry, assistant medical superintendent, was last week presented with an illuminated address by the members of the staff, in recognition of the kind manner in which he assisted both nurses and attendants to gain the certificates awarded by the Medico-Psychological Association of Great Britain and Ireland for Tending the Insane.

Mater Misericordiæ Hospital.

This institution is one of the largest in the kingdom, but for some time the accommodation has been insufficient for the demands made upon it. It contains 330 beds, all of which are constantly occupied. Two of the largest wards are at present filled with typhoid fever patients, and in order to have these wards filled with ordinary cases and the fever cases removed it has been determined to erect a special wing for fever cases only, to accommodate about 100 beds. There is sufficient space at the rear of the hospital for the construction of a new wing, and there will be little difficulty in obtaining any funds that may be required. The maintenance of the Mater Misericordiæ Hospital costs £9000 yearly, 400 persons being supported daily. A meeting has been held in reference to this matter and considerable offers of support promised.

Miss Allingham has given a donation of £500 towards the funds of the National Lying-in Hospital, Dublin.
Dec. 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Frigo-therapy.

THE eminent physicist, M. Raoul Pictet, is the inventor of this latest addition to our armamentarium. Discoursing on the subject at the Académie des Sciences on the 3rd inst., he states that all heat rays corresponding to temperatures below – 65° or – 67° C. traverse bodies just as rays of light traverse glass. Thus the cold rays pass through a rug, blanket, or a plank in the same way as a luminous ray passes through a pane of glass. Animals are never here below exposed to a lower temperature than – 45° to – 50° and their natural coats afford them sufficient protection; but supposing a dog is enveloped with the warmest of blankets or eider-downs, and is then placed in a frigorific well maintained at a temperature of – 100° or – 110°, what happens? The rays between – 65° and + 37·5° (the dog's normal temperature) will be absorbed by the coverings, whence the total suppression of the sensation of cold at the cutaneous surface. The dog's body will experience a loss of heat, due to the rays comprised between – 110° and – 65° which traverse the thick coverings to be absorbed by the body. The entire body will thus cool down without the sensation of cold at the periphery warning the animal of the danger he incurs. Under these conditions, realised for the first time by M. Pictet in his own person, the experimenter states that the digestive functions are so powerfully stimulated that in a few minutes an intense hunger is experienced, together with increased energy of the circulation. M. Pictet had for six years suffered from painful dyspepsia, rendering the prospect of a meal a cause of anticipatory suffering, and he had forgotten what a good appetite was. After a few sojourns in the *puits frigorifique* he avers that his digestion became quite good, rapid, and painless. Eight applications of this singular method, lasting from eight to ten minutes each, brought about a perfect and permanent cure. Should M. Pictet's results be confirmed by further and more extended essays, we must expect soon to witness the inauguration of *puits frigorifiques* wherein we shall see our familiar friends, the dyspeptics, sitting enveloped in the thickest of ulsters, rugs, and blankets, and emerging from this hyper-arctic medium suffering, not from indigestion, but from ravenous hunger. But does not all this sound almost too good to be true?

Vaccination and its Modus Operandi.

I suppose most practitioners vaccinate by means of punctures or scarifications or by a combination of the two methods. In a suggestive article in the *Médecine Moderne* (Dec. 8th) Drs. Rafinesque and Raymond, medical inspectors of the Municipal Schools of Paris, furnish statistics to prove that surer results are obtainable if the method of *grattage* (scraping) be had recourse to. They say that, whatever be the method employed, primary vaccination succeeds almost invariably, but that revaccinations are often a failure. The subject of the latter is then regarded as immune when in reality he is, according to the above-mentioned authorities, quite capable in many cases of contracting variola. The proof of this is that it frequently happens that revaccination practised soon after the unsuccessful attempt is quite successful. The contention of Drs. Rafinesque and Raymond that their scraping method is superior to the puncture method in vogue here is amply supported by the following figures:—Children revaccinated by puncture by M. Chambon, official vaccinator of the Paris hospitals, 332—successful, 28; unsuccessful, 304. Children revaccinated by scraping, 379—successful, 127; unsuccessful, 252. In these latter cases comparative punctures were also made, and these yielded the same percentage of successes (6 per cent.) as did M. Chambon's. The greater success of the scraping method is due to the larger absorbing surface thus obtained. How is it practised? With the cutting edge of the lancet or, better, the vaccinating style, charged with lymph, the skin is scraped until the superficial epidermic cells are removed and an oozing surface is exposed. This surface, measuring only a few square millimetres, is then covered with vaccinal pulp and the operation is over. I would strongly recommend my professional brethren to employ only this scraping method, more especially in revaccinations. The above figures show that many adults are going about fully believing in their immunity (after unsuccessful revaccination), whereas the operation conducted on the scraping plan would quickly disabuse them of a dangerous error.

Dec. 11th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Contagious Diseases communicated by the Communion Cup.

THERE is much agitation in religious and medical circles over a statement of a physician that there is evidence that certain forms of contagion have been communicated through the medium of the common communion cup. He alleges that twenty-two different diseases may thus be propagated from mouth to mouth by the use of a common drinking cup, which is not disinfected every time it is used. He regards the danger as being so great that he proposes that the Legislature should be petitioned to pass laws prohibiting the use of the common communion cup. In his own church he has supplied a cup to each communicant. Among the diseases which he believes are thus communicated he includes tuberculosis and even catarrhal affections of the air passages. Clergymen view the subject differently. Some approve the separate communion cup very cordially; others propose that the deacons carry clean napkins and wipe the edge of the cup after its use by the communicant; while the larger number ignore or ridicule the suggestion. Medical men, however, are by no means disposed to treat the matter lightly, and as the agitation goes on evidence is accumulating that the danger of the use of a common cup, passed rapidly from mouth to mouth, has not been exaggerated. One unexpected feature of the practice has lately appeared in the discussion which proves that there is an additional danger in the common cup. Many persons have alleged that they have been so impressed with the impropriety of applying their lips to the uncleaned cup that they are in the habit of first wiping the edge with their own handkerchiefs, thus they are liable to soil the cup with matters from their own affected air passages.

The Health Office of the Port of New York.

Great interest is awakened in the appointment of a health officer at this port. The office is one of very great responsibility. The incumbent is not only the head of the quarantine service, but he is a full member of the city board of health and also of the State board of health. As health officer he is truly a national sanitary official, for through this port the immigrants who are the carriers of contagious and infectious diseases pass into the country. This great sanitary office has hitherto been a mere political prize, which has been sought only by medical place seekers. Though there is the usual scramble for the place an effort is being made by the profession to raise the character of the office by securing the appointment of a competent sanitarian.

Dec. 1st.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Antitoxin Serum in Alexandria.

IN October a committee of Greek and other merchants in Alexandria determined to emulate the example of many French towns and to form a public subscription for the provision of the new serum to all classes of the community. In a few days £600 was subscribed, and £400 was at once sent to the Pasteur Institute in Paris; but some dissatisfaction was experienced when it was found that the Institute accepted thankfully the gift but announced that at present no serum was available. Fortunately, three of the Greek medical men of Alexandria happened at the time to be in Paris, and not only had the advantage of studying the new treatment on the spot, but were able to return to Alexandria with a few bottles of the precious fluid. Moreover, Professor Roux has offered to send later one of the horses which is now being immunised. During the same time Dr. Bittar and Dr. Schiess have been conducting experiments with several bottles obtained from Germany, and they have also begun to immunise a horse for the service of the municipality. It remains to

be seen in the future whether it will not be better to import the serum regularly by post from Europe than to trust to bacteriological research in this country, where at present there are only two experts capable of performing the work as it is done in Europe. The therapeutic results in Alexandria are not yet numerous enough to justify quotation, but the various medical men who have utilised the serum are, so far, very much in favour of its adoption. As yet the serum cannot be obtained in any quantity by druggists, and care has to be taken to prevent native medical men from falsely certifying the existence of diphtheria in order to obtain possession of a remedy which has for the moment a high market value.

Antitoxin Serum in Cairo.

The sanitary department early in November applied to Dr. Roux for serum, but was told that the Pasteur Institute would be unable to supply any serum until the end of December. An appeal to Professor Koch was more successful, and some sixty bottles arrived from the factory at Höchst-Main. The serum has been offered to any Cairo medical man who notifies the existence of a case of diphtheria and who sends a portion of the suspected membrane to be bacteriologically examined by Dr. Kaufmann. Thus by the courtesy of Professor Koch some eighteen cases have been treated in Cairo during November, and sixteen of these were proved by the microscope to be true diphtheria. There have been five deaths, four of the cases having been extremely advanced before medical aid was summoned. In the fifth case five injections of 20 grammes each were given during five days, dating from the second day of the disease; but the case proved to be a very malignant one, with gangrenous throat, purpura, suppression of urine, and endocarditis. The only serum which had then arrived was a German preparation of only 740 units. Had stronger doses been available the disease might possibly have been checked. All observers here agree that the membrane falls rapidly from the pharynx within twenty-four hours after the first injection, and that, so far as can be seen at present, the serum causes no ill effects, whether it is curative or not. In one child—and practically all the patients treated have been from fifteen months to ten years of age—temporary urticaria and fever followed an injection, and in another child a tiny abscess resulted from the first of five injections. It is possible that both these accidents may have resulted from some unconscious forgetfulness of asepticism, for in none of the other injections has there been the least local reaction. It is to be hoped that before long some decisive information may be given as to when it is useless to begin or to continue injections, for at present the profession is very much in the dark about the manner of using the new remedy. Moreover, every factory seems to produce serum after its own method, and as yet we cannot compare the various strengths of the Continental brands. Some of us have such faith in men like Professor Koch that we are willing to experiment with any fluid which he guarantees to be harmless; but surely this blind confidence cannot, and ought not to, be extended to all serum providers. Diphtheria is generally present in Cairo among the natives and Levantines, though fortunately it is a very rare visitor in English houses, and is not seen among the British troops. During 1893 there were 150 deaths certified from diphtheria, which, by the average of European hospitals, would only give about 300 cases during the year in Cairo. In 1894 the cases are fewer than last year, and it is chiefly during the autumn months that cases are notified.

Anti-Diphtheria Committee for Cairo.

Not to be outdone by Alexandria, some influential Jews and others have elected a body of six laymen and six medical men to decide how best serum can be provided for Cairo and the rest of Egypt. The six medical men were chosen by practitioners not interested in the question, and include two Englishmen, a Frenchman, a Greek, an Austrian, and a German. The subscription list already amounts to £500, though nobody has any definite idea as to how or on what the money should be spent. The Sanitary Department has so far had a supply of serum greater than the demand, and it is assumed that in January or February any druggist will be able to order it from Europe. However, the committee has sent £120 as a donation to the Pasteur Institute, whence it now receives twice a week a few bottles of serum. Arrangements have been made for the distribution of the serum at any hour upon the personal application of a medical man.

Cairo, Dec. 3rd.

Obituary.

WILLIAM WITHERS MOORE, M.D. EDIN., F.R.C.P. LOND., D.C.L. DURH., J.P.

WE announced last week the death of Dr. Withers Moore, which took place at his residence, The Oaks, Burgess Hill. Although upwards of seventy years of age he was in very fair health until quite lately. On the 1st inst. he attended a church meeting held in Brighton and took part in the proceedings. Next day, however, he was seized with cardiac symptoms, which, notwithstanding the unremitting attention of his medical friends, including Dr. Wilks, proved fatal on the 5th inst. Dr. Moore commenced his medical career in Yorkshire, having qualified as M.R.C.S. and L.S.A. in 1845. Aspiring, however, to the position of a physician, he graduated at Edinburgh University as M.D. in 1861; in 1863 he became a Member of the Royal College of Physicians of London, and in 1874 was admitted to the Fellowship. Having settled in Brighton, he attained in course of time great success. In 1886, after an interval of thirty-five years, Brighton received the British Medical Association on the occasion of its fifty-fourth annual meeting. Dr. Withers Moore then filled the presidential chair, and delivered an eloquent address, taking for his subject the Higher Education of Women, stoutly resisting the views of those innovators who desire to place the sexes on an equal intellectual level, and justifying his arguments mainly on physiological grounds. When the Association met at Newcastle-on-Tyne in 1893 Dr. Withers Moore vacated in due course the office of President of the Council, and was honoured by Durham University with the degree of D.C.L. He was Consulting Physician to the Sussex County Hospital, and was formerly a member of the Court of Examiners of the Society of Apothecaries. Several years ago he retired from the practice of his profession and found some occupation for his energies in attention to local affairs. He represented Burgess Hill in the East Sussex County Council, and was also a Justice of the Peace and member of the local board. He was well known for his charities, and presented St. John's Church with a valuable organ. He has left a numerous family to mourn his loss, and will be deeply lamented by a large circle of friends and neighbours.

FRANCIS BISSETT HAWKINS, M.A. M.D. OXON., F.R.C.P. LOND., D.L.

GENERAL regret has been occasioned by the announcement of the death of Dr. Bissett Hawkins, which occurred on Friday, Dec. 7th. The event was by no means unexpected, for our venerable colleague had enjoyed wellnigh a century of life, crowded during its active years with important and honourable work. He was born in 1796 in London, where his father, Mr. Adair Hawkins, was a distinguished surgeon. His education was received at Eton, from which he passed in due course to Exeter College, Oxford. In 1818 he acquired the A.B. degree. Having adopted his father's profession, he graduated at Oxford as M.B. in 1822 and M.D. in 1825. His subsequent attainment of medical honours was very rapid. In 1825 he was admitted as inceptor-candidate of the Royal College of Physicians of London, and in 1826 he became a Fellow. His great abilities were speedily recognised within the College, and the Goulstonian Lectures in 1828 were entrusted to him. In 1830 he was appointed Censor and in 1835 Lumleian lecturer. At a comparatively early age he was known as a writer of authority on medical subjects, his "Elements of Medical Statistics" having appeared in 1829. About the same time the "Lives of British Physicians" was enriched with many notable biographies contributed by him. This department of literature occupied him even to a comparatively recent period. About the time of Dr. Hawkins' censorship epidemic cholera began to create alarm, and a history of it as observed in Russia was published by him in 1831. He was the first Professor of Materia Medica appointed at King's College, but he held that office for a comparatively short time, resigning in 1835. His principal labours have been of an advisory and administrative nature, and uniformly directed in a philanthropic spirit to the improvement of the condition of the people. He was nominated an Inspector of Prisons in 1836, and in 1847 and the following year was a Commissioner

for the Government of Pentonville Prison. In his "Reports on the Prisons of the Southern and Western Districts of England," issued between 1836 and 1842, and in other works, he endeavoured, and with some success, to lessen the severity of the system of solitary imprisonment which was contemplated at the time. While Factory Commissioner, an important position to which he was appointed in 1833, his efforts were constantly directed to the limitation of the hours of labour of females and young persons; he also advocated the formation of public recreation grounds in Manchester. It is of interest to us in the present day to be reminded that it was his recommendation which first led to the systematic registration of the causes of death. Dr. Hawkins had for a long time been resident in Dorsetshire, and in 1858 was appointed a Deputy-Lieutenant for the county.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE Council which concluded its session last week accomplished a record in the duration of its deliberations, and on the whole we may congratulate the members upon time well spent. The nine days were fully occupied in the investigation of the wide bearings of important subjects, and but a small percentage of time was frittered away in questions of order and procedure. We take this to be almost as high a compliment as can well be paid to a deliberative body, especially when that body is by no means small, and made up of the representatives of institutions having in many directions opposite interests.

At its May meeting the Council referred certain proposals for the amendment of the Medical Acts to the Executive Committee for consideration. Since then, in spite of the summer season, the Executive Committee seems to have been in a state of hybernation. No report on these proposals or on any other was made, but several suggestions of the solicitor of the Council as to mode of procedure for getting alterations in the law were brought forward. The hare must be caught before it can be cooked. We must have the amendments which are thought desirable. Then we must consider those which are procurable. It will then be time enough to consider the way to set about getting them enacted. The Executive Committee threatens to suffer in reputation by accepting more than it can do.

We are glad to learn that in many cases of erasure from the Register there is a possibility, with good behaviour, of restoration to the list. The Council has prepared a form of application for this purpose to be used by those wishing to be so restored. This departure is decidedly a good one. It is right that there should be a recognised path back to the fold, and the Council makes its own work simpler by indicating the kind of evidence that it will expect from such applicants.

Nine cases of alleged misconduct were brought before the Council for its judgment, and in seven of them the Council ordered the erasure of the names. We referred to most of these cases in THE LANCET of last week. On the last day of the meeting the Council ordered the erasure of the name of Mr. John Alexander Brown, M.R.C.S., L.S.A., for associating himself with and assisting an unqualified person named George Thomas Congreve, who professes to cure phthisis. This is an alliance which cannot be justified on any theory of medical duty, and it is to be regretted that Mr. Brown allowed himself, as a registered medical man, to be so used. The remedy is a secret one, and is sold for large prices. There is neither philanthropy nor credit in such an association. A medical man may insist on maintaining it, but he has no right to expect to be retained in association with a great profession which knows no secrecy in its cures, and does not include advertisement and coöperation with the unregistered among its methods. Mr. Brown did not personally appear before the Council in answer to his summons.

The motion of Sir Dyce Duckworth that the Council will view with grave displeasure the communication to the press of any reports of the Council marked confidential was an unhappy one and was properly rejected by the Council. No such offence had been committed by anyone unless it was by Sir Dyce Duckworth himself, who read out the actual report to the publication of which he took exception in the presence of the reporters. Moreover, at that time the reports of the Examination Committee being circulated freely in the course of the discussion were not marked confidential. It is not quite satisfactory that the remarks of a visitor should be withdrawn; but it is also not quite reasonable for any member of the Council first to give expression to them with reporters present, and days after to complain when he sees his own words in print. We comment fully in our leading columns on several important matters which came under the consideration of the Council; but as pressure on our space, always great, is necessarily much increased during the period of session of the Council, we are compelled to hold over till next week our remarks upon the changes in the medical curriculum determined on by the Council.

THURSDAY, DEC. 6TH.

LAST week we gave a brief account of this the closing day's proceedings of the Council, and now return to them in order to give our usual extended report.

Applications for Restoration to the Register.

The first matter taken into consideration was the standing order regulating the procedure to be adopted in restoring names to the Medical Register. The order, after being discussed by the Council in committee on Nov. 27th, was referred to Mr. Muir Mackenzie, and it was in the form approved by him that it now came before the Council.

Discussion arose upon Section 3 of the order, which ran as follows: "The statements in the application must be verified by a certificate in writing, to be given either by a justice of the peace or by a registered medical practitioner resident in the neighbourhood where the applicant is residing at the time when he makes the application."

Dr. GLOVER moved an amendment to the effect that the statements must be verified by a justice of the peace and by a registered medical practitioner. He thought there should be two certificates.

Dr. MCVAIL said it would be difficult to comply with this order in sparsely populated districts in Scotland. It might happen that the man was not on particularly good terms with the resident practitioner, and the nearest neighbour was twenty or thirty miles away. The certificate of a medical practitioner thirty miles away could hardly be accepted as that of a man resident in the neighbourhood. He would therefore prefer that the section remain in its present form.

Dr. PETTIGREW agreed with this view.

Mr. BRUDENELL CARTER assured Dr. McVail that the sparsely populated districts would be avoided by persons who had been removed from the Register.

The amendment proposed by Dr. Glover was then agreed to.

Mr. WHEELHOUSE pointed out that in different places in the order they were described as the "General Council"; he thought the term ought to be "General Medical Council."

Dr. CHURCH could not agree with this. He thought if they were going to alter the title at all they should adopt their real one—namely, the General Council of Medical Education and Registration. In his opinion a great deal of misapprehension had arisen from the fact that they were in the habit of calling themselves the General Medical Council. It had given many people the notion that they were connected

with what he might call the trades union side of the question.

The REGISTRAR (Mr. Miller) said that in the different Medical Acts their short title was the General Council.

Mr. BRUDENELL CARTER suggested that in official documents the full title should be given on the first occasion and the short one afterwards.

Dr. P. HERON WATSON moved, as an addition to the section, these words: "As well as by a justice of the peace and a registered medical practitioner resident in the locality where the applicant resided at the time his name was removed from the Medical Register."

Mr. BRUDENELL CARTER seconded this addition.

On being put to the vote it was rejected.

Mr. BRYANT then moved that the section take this form: "The statements in the application must be verified by certificates in writing to be given by a justice of the peace and by a registered medical practitioner resident in the neighbourhood where he has been residing since his removal."

This form commended itself to the Council and was at once adopted.

There was also discussion upon Section 4, which was to this effect:—

"On receipt of the application it shall be referred by the Registrar to the Executive Committee for consideration and report. Before the application is considered by the Executive Committee the Registrar shall notify the same to the Licensing Bodies whose qualifications were held by the applicant at the time his name was erased; and shall further, by letter addressed to the person or body (if any) on whose complaint the applicant's name has been erased, give notice of the application and of the time when the Executive Committee intend to consider the same, and invite such person or body to transmit for the consideration of the Executive Committee information or observations in reference to the application."

Dr. GLOVER moved to delete the invitation to come forward with information or observations. The Council and the profession were very much indebted to those bodies who brought penal cases forward, but surely the Council had no desire to hound on or stimulate accusing parties. He thought they did enough if they gave them an opportunity to bring up any information against the applicant.

Sir PHILIP SMYLY seconded the amendment.

After some discussion it was agreed to leave out all the words after "to consider the same."

The Case of Mr. J. A. Brown.

The Council then proceeded to consider the case of John Alexander Brown, registered as M.R.C.S. Eng., 1877, L.S.A. Lond., 1877, who had been summoned to appear to answer the following charge, as formulated by the Council's solicitor:—

"The complaint is in reference to an establishment at Coombe Lodge, Peckham, carried on by an unqualified person named George Thomas Congreve, who professes there to effect cures of consumption and to prescribe treatment and sell medicines to consumptive patients, which cures and medicines are described and advertised in a book circulated and published by the said George Thomas Congreve, that he (Brown), as a registered medical practitioner, had associated himself with the said George Thomas Congreve in the conduct of the said establishment, and assisted him with his (Brown's) name, qualifications, and presence to carry on a medical practice at the said establishment."

Dr. BATEMAN of the Medical Defence Union was present to support the charge, but Mr. Brown did not put in an appearance nor was he professionally represented.

Mr. FARRER, solicitor to the Council, having read the notification and summons to Mr. Brown,

Dr. BATEMAN said the charge was based on a book, as to the publication and sale of which by Mr. Congreve of Coombe Lodge, Peckham, there could be no dispute. It was entitled "On Consumption of the Lungs or Decline and its Successful Treatment, showing that Formidable Disease to be Curable in all its Stages, with Observations on Coughs, Asthma, Chronic Bronchitis, &c., &c.," and it was further stated to be published by the author and by certain London publishers. In the book the treatment he advocated was stated to have been attended with gratifying success. It appeared that a medicine termed "balsamic elixir" was recommended. Mr. Congreve and Mr. Brown sold it at 22*s.*, 11*s.*, 4*s.* 6*d.*, and 3*s.* 6*d.* a bottle, and it was singular, remarked Dr. Bateman, that they always recommended the 22*s.* bottle. In the book, which could be procured by anybody, there was a series of questions to be answered as far as possible, and, if convenient, by the patient. Mr. Brown was connected with Mr. Congreve, who was his father-in-law, by several specific passages in the book.

Mr. FARRER read a written defence which Mr. Brown had forwarded to the Registrar. In this defence Mr. Brown fully admitted that he had been associated with Mr. Congreve for some years, but not as a partner. He had seen patients at Mr. Congreve's address, and in suitable cases he had, along with other things, prescribed the medicine referred to in the solicitor's letter in the same way as any medical man might prescribe medicine which had been proved by use to be successful. The medicine had been in use for sixty-eight years, and to his knowledge with success. He repudiated the charge of "infamous conduct," and said his conscience was perfectly clear of any moral offence.

Dr. BATEMAN, replying to a question by Mr. Bryant, said the charge here was really one of associating with Mr. Congreve and recommending patients by advertisement to take an absolutely secret remedy.

The Council having deliberated *in camerâ*,

The PRESIDENT, addressing Dr. Bateman, said they had come to the conclusion that Mr. Brown had committed the offence charged against him, that the offence constituted infamous conduct in a professional respect, and that the Registrar should be directed to erase Mr. Brown's name from the Medical Register.

The Publication of Committee Reports.

Sir DYCE DUCKWORTH moved: "That this Council views with grave displeasure the communication to the press of any reports of the Council that have not been discussed and adopted by that body." In doing so he said he thought this proposition was practically self-evident. He did not suppose that anybody would be prepared to get up in the Council and say that they thought such reports as were debated by this society should be made public until they were debated. He understood that the rule of the office was to hand on to the press all matter that passed on to the minutes of the Council, being thus considered as public property. Take the case that occurred last week. There was a report handed in by the Examination Committee, and under that rule it became public property and was published at length in the journals that appeared two days subsequently. The discussion of the report was adjourned until the following day, and in the course of the debate material changes took place which gave it a different application. In the meantime the original report received full circulation. The altered report did not receive any circulation at all. He did not know whether it pleased the reporters to issue a new report of the proceedings on that day. The account of the proceedings on that day was unusually curtailed, so that the evidence which led to the alteration of the report was not placed simultaneously before the public with the altered report; and it so happened that it appeared that the bodies indicated in that report received a reprimand from this Council which they did not receive. But it was easily to be seen that this matter might occur at some future time. On the previous day Dr. Tuke told them of a confidential report of this kind which had not only not been presented, discussed, and adopted by the Council, but which was discussed in the public press a week before the Council met. It was necessary that some new rule should be made in the office. It was certainly right that no report which had not been discussed and adopted by the Council should be handed to the press for publication. He thought some little change in the rule might easily be made, so that such impropriety—he could call it by no other name—should never occur again.

Dr. HERON WATSON said his name was on the programme as seconding the motion. He seconded it formally, but wished to reserve any remarks he had to make.

Dr. MACALISTER suggested that the word "adopted" in the motion should be replaced by the words "dealt with," because sometimes they did not adopt reports as a whole.

Dr. GLOVER said he wished to say a few words with the object of persuading his friend, Sir Dyce Duckworth, to withdraw this motion, or at any rate to persuade the Council to vote against it. He could not help thinking that the adoption of it was unworthy of the Council, and that its adoption would lead to very unpleasant and unfortunate consequences. He regarded it as altogether in excess of the little incident which had called it forth—what he might call one solitary incident which had never occurred before in the history of the Council so far as he knew. He regretted himself that it did occur. He regretted the way in which the report which was involved in this discussion was disposed of and a portion of it removed from their minutes. He thought that course of proceeding was open to very great objection. He liked a little individualism in their reports, and if a visitor or inspector did make some criticism which might be thought by some to be a little in excess of charity he did not think it

was desirable for this Council to remove it. This was the first incident of the kind in the history of all the visitations of the Council, and to accept such a motion as that of Sir Dyce Duckworth, based on such an infirm and inadequate foundation, was unworthy of the Council, which for many years had enjoyed the faithful and accurate reports of the medical press. The Council and its proceedings were severely left alone by the other newspapers, and he thought they were under great obligation to the medical press, which took such pains to report their proceedings. When they had the reporters present they were free to report what occurred. What did happen in this very matter? Sir Dyce Duckworth read out every word of the report of the Examination Committee's report, which appeared upon the minutes the next day. If the reporters had been able—as they might have been with better conditions of hearing in the Council room—to take down every word with accuracy and literalness they were fully entitled—and no action of the Council could stop them—to report every word they heard. Well, the reporters were present by the Council's own arrangement. As the French proverb said, "The door must be shut or it must be open." They had just had the door shut in connexion with the penal case they had dealt with, but on this particular occasion it was open by their own arrangement, and they invited the gentlemen who sat on their left to give them a faithful report. There were two courses open to the reporters. They were at liberty either to take down from Sir Dyce Duckworth's lips the words that he read out or to copy these words from the printed report. If the reporters suffered as well as the members of the Council did from the imperfect acoustic properties of the room they showed a very wise discretion in preferring the printed report; yet that was the offence which called forth this remarkable resolution of Sir Dyce Duckworth—though he did not say for whom the shot was aimed — "that this Council views with grave displeasure the communication to the press of any reports of the Council that have not been discussed and adopted by that body." It had been done for twenty years. He (Dr. Glover) objected at the tail end of a long session to their being asked to deal with such a flimsy resolution as this, when the reporters were just doing their duty to report in a most accurate manner what transpired at the Council table. He had this further to say. He would like Sir Dyce Duckworth to state with whom it was he was so gravely displeased. Was it with the Council or was it with the Registrar and staff of the office? But even if Sir Dyce Duckworth's resolution were carried it would not be a remedy for the evil of which he complained. What would happen would be that they would have imperfect reports from the reporters as the result of imperfect hearing; the reports would necessarily be of a garbled instead of a correct kind. It was desirable for the Council to have exact reports, and but right and due to the reporters that they should have every opportunity of furnishing to their papers such reports. When documents were read out literally word for word at this table, and the reporters were present by permission of the Council, then he maintained they ought to have full permission to use these documents. He thought the motion had no basis at all adequate. He was not there as a member of the press, although he had the honour to be connected with it, and he wished to say, in conclusion, that he thought the members of the Council were under great obligations to the reporters, not only for what they reported, but also for their deference to the wishes of the Council in regard to any matter they wished not to be reported. He hoped the Council would decline to adopt this resolution.

Dr. BRUCE said he would second the rejection of the motion.

The REGISTRAR asked Dr. Glover if he made any specific proposal.

Dr. GLOVER said he proposed to vote against the motion.

The PRESIDENT said a modification of the motion had been handed in which might perhaps simplify matters. It would then read as follows: "That this Council views with grave displeasure the communication to the press of any reports of the Council which are marked 'confidential.'"

Dr. BRUCE inquired who made the modification.

The PRESIDENT: Sir Dyce Duckworth.

Dr. MCVAIL said the modification did not alter the matter at all. All the documents were marked "confidential" until the members got to their homes, when they received them with that word removed. It simply meant this: that the reporters, who were freely admitted to this room during the discussions of the Council, would not in the future get the reports which members received, but they would hear members speak freely about the reports, and quote portions of them as they pleased, while they (the reporters) would not have a correct copy before them. It would simply lead to complete confusion of the reports by the reporters, considering the character of the room in which the Council assembled. He (Dr. McVail) was considerably nearer many members of the Council than the reporters were, and when, say, Sir Dyce Duckworth, Dr. Wilks, and Mr. Bryant spoke the others at the far end of the table from the chair often heard them very badly. What would the reporters do? They would hear Sir Dyce Duckworth, for instance, presenting and dealing with a report of the Examination Committee, but they would not have the "confidential" report in their hands, and they must take the matter down in any way they could and would most probably get it on their notes in a confused and imperfect fashion. He held that the true way out of the difficulty was for the Council to consider its reports before putting them on the minutes. Mr. Muir Mackenzie, their legal adviser, had told him there was no need for their putting reports on the minutes before considering them, but that they could consider reports before they were put on the minutes if they chose. Therefore he repeated his view that by far the best way of proceeding would be to cease to put the documents on the minutes until they had been considered, and then they could put on the minutes such portions as they thought fit. He sincerely hoped this motion would not be carried in the form in which it stood on the agenda or even in the amended form.

Dr. ANGUS FRASER said Sir Dyce Duckworth's motion had no reference to the offence of which he complained. The report of whose appearance in THE LANCET he complained was not marked "Confidential."

Dr. BRUCE: Let us come to a vote.

Dr. HERON WATSON said his feeling with regard to the matter had not in the least degree been one in which he attached the smallest blame to the reporters, or to the medical press, or any other press. The person to whom he attached blame was the person who was the communicatory who handed over reports which belonged to this Council. They were told the other day by a member of the Council of a report appearing in one of the medical papers before it was submitted to the Council, or indeed before the Council had met. To be able to do so the newspaper must have been in possession of documents which were private and confidential and which were not in a state in which there was any justification for publication.

Dr. GLOVER: Will you specify particulars of that?

Dr. HERON WATSON said he alluded to what was stated in open Council and was not contradicted. He should be delighted to hear any statement about it. What he suggested was, not that they should be deprived of the presence of the reporters, but that they should not have sent to them, and through them to the press, information which ought not to be prematurely committed to the public. If it was sent to them they reasonably enough made use of it, but the persons who had really to be dealt with in this matter were, so far as he knew, not distinctly designated. It might be that documents reached the press either in going to the printing house or in coming from the printing house to the office, or when they were circulated to members, or it might be *per incuriam* on the part of members of the Council leaving printed documents lying about without due care, which were certain to be picked up and be sent to a destination for which they were not intended. His object in seconding the motion was to secure a certain arrangement amongst themselves, and that they should mete out to other persons who did not belong to their body a just recompense and reward if on any future occasion they made public what was private.

Mr. CHARLES MOORE said that matters concerning the business of the Council had appeared in the Dublin newspapers before they were reported to the members of the Council in Ireland. He thought such a proceeding was very hurtful to the Council and the Irish bodies concerned.

Dr. TUKE said that Dr. Watson had alluded to a remark he made on the subject the previous day. He had not been able to get a file of the paper in question, but undoubtedly it was true that some two or three years ago the whole of the business of the Council as stated in the confidential provisional programme was given in one of their papers.

Dr. GLOVER: In one of the Scottish papers?

Dr. TUKE: I say "a paper" in the meantime.

Dr. GLOVER: But not a medical journal?

Dr. TUKE: If you must know, it was; and, if you must know further, it was THE LANCET.

Dr. GLOVER: I have not the slightest knowledge of the matter.

Dr. TUKE, proceeding, said that in this present instance the reporters only exercised their undoubted rights of making use of what they heard going on this room. He did not think the two cases stood on the same footing at all.

Dr. BRUCE said the resolution should be directed against those who communicated these documents to the press. It seemed to him that the resolution cast some aspersion on the press who received them. (No, no.) Well, he could not help looking at it as conveying the idea that some guilt attached to those who received the communications.

Dr. HERON WATSON: I disclaim that altogether.

Dr. BRUCE said it seemed to him that any attempt on the part of the Council to use any sort of censorship of the press would be a great mistake.

Dr. HERON WATSON: It would be absurd.

Dr. BRUCE said he thought they might go on trusting the press as they had done in the past.

Mr. BRUDENELL CARTER said that as the helpless cause, he presumed, of this discussion he should like to say that he saw very great difficulty in accepting Sir Dyce Duckworth's proposal as meeting a case of this kind. The reporters were accustomed to report the debates of the Council, and these debates would be about the reports which would be before the members, but which the reporters would not in future, under this proposal, receive or be permitted to publish. Without having the reports before them as a text he apprehended the debates would be unintelligible and that the result would be that they should have a species of press reports in gaps, much the same as Her Majesty's Ministers were spoken of in the newspapers fifty years ago. It did seem to him that in this matter a good deal too much had been made of a very small thing. In his capacity of visitor of the English Conjoint Board Final Examinations he made certain observations. He was told privately by members of the Council that these observations had given offence, where no offence was intended, and he declined to accentuate the offence by persevering with them in the Council and said he should be very happy to withdraw them. He was not ashamed of these observations and was prepared, if necessary, to defend them, but he was quite willing that they should not go on the record. But that a brief summary of them got into print did appear to him to be a very insignificant thing, about which the less said the better.

The PRESIDENT, having read the motion as modified, said exceptions might arise when the Registrar was aware that there was no occasion for strict secrecy. Documents in the case need not be marked "Confidential," but if they were marked "Confidential" they should be so regarded.

The motion was then put to the vote, when it was supported by five members only and was thus rejected.

Dr. CHURCH asked if he was to understand that nothing presented to the Council was to be regarded as confidential, though so marked.

The PRESIDENT: I am afraid that the vote you have just passed opens the way to the publication of everything.

Dr. MACALISTER pointed out that they had documents marked in two ways—one way being "Confidential" and the other "Strictly confidential."

Dr. GLOVER: How can anything be strictly confidential which is read out at this table?

The PRESIDENT trusted that the discussion which had taken place would impress the importance of showing some respect to the character given to the documents placed before the Council. The press were present by the leave of the Council. They had behaved with infinite tact and judgment throughout; the Council had no reason to complain, and he was sure the same tact and propriety would continue to be applied to their reports in the future.

Sir DYCE DUCKWORTH said he was quite satisfied with the course which the debate had taken, because he felt sure that what had happened would not happen again, but that care would be taken that reports which should go to the press should go, and those which were not to go to the press should not go.

This concluded the business of the session, and the Council rose.

WE understand that the Jenner relics, which have been recently exhibited at Bristol and in King's College, will be sold by Messrs. Puttick and Simpson in Leicester-square, on Friday next, Dec. 21st.

Medical News.

UNIVERSITY OF LONDON.—The following candidates passed the M.B. Examination for Honours in October:—

MEDICINE.

First Class.

*Leete, Arthur Henry, Guy's Hospital.
†Russell, Alfred Ernest, St. Thomas's Hospital.
§ Manning, Guy Eugene, Guy's Hospital.
§ Poynton, Frederick John, St. Mary's Hospital.
Collier, James Stansfield, B.Sc., St. Mary's Hospital.
Hunt, George Bertram, University College.
Stephenson, John, B.Sc., Owens College and Manchester Royal Infirmary.
Steward, Francis James, Guy's Hospital.
§ Fisher, John Herbert, St. Thomas's Hospital.
§ Young, Robert Arthur, B.Sc., Middlesex Hospital.

Second Class.

Taylor, Edwin Claude, Guy's Hospital.
§ Bolton, Joseph Shaw, B.Sc., University College.
§ Hainworth, Edward M., B.Sc., St. Thomas's Hospital.
§ Hopkins, Frederick G., B.Sc., Guy's Hospital.
§ Stanley, Arthur, St. Mary's Hospital.
Cowen, George Hebb, London Hospital.
Davies, Hugh, Guy's Hospital.
§ Corthorn, Alice Mary, London School of Medicine for Women.
§ Lee, William Edward, St. Bartholomew's Hospital.
§ Raper, Matthew Henry, Middlesex Hospital.
§ Sloane, John Stretton, B.Sc., St. Bartholomew's Hospital.
§ Smith, Edwin, St. Thomas's Hospital.

Third Class.

Wallace, Cuthbert Sydney, St. Thomas's Hospital.
Bennett, Lizzie, London School of Medicine for Women.
§ Hughes, Susan Anne, London School of Medicine and Royal Free Hospital.
§ Steen, Robert Hunter, Queen's College, Belfast, and St. Mary's.
§ Hovenden, Arthur Cecil, Guy's Hospital.
§ Spink, Ernest William, Yorkshire College.
Haines, John William, St. Bartholomew's Hospital.
Shears, William, St. Bartholomew's Hospital.
Chadburn, Maud Mary, London School of Medicine and Royal Free Hospital.

OBSTETRIC MEDICINE.

First Class.

‡Lee, William Edward, St. Bartholomew's Hospital.
†‡Wallace, Cuthbert Sydney, St. Thomas's Hospital.
Steward, Francis James, Guy's Hospital.
Taylor, Edwin Claude, Guy's Hospital.

Second Class.

§ Poynton, Frederick John, St. Mary's Hospital.
§ Russell, Alfred Ernest, St. Thomas's Hospital.
Fisher, John Herbert, St. Thomas's Hospital.
Weir, Arthur Nesham, B.Sc., St. Bartholomew's Hospital.

Third Class.

Cowen, George Hebb, London Hospital.
Moffett, Elizabeth Jane, B.Sc., London School of Medicine and Royal Free Hospital.
Houlton, Ernest Henry, Yorkshire College.

FORENSIC MEDICINE.

First Class.

‡Collier, James Stansfield, St. Mary's Hospital.
‡Bolton, Joseph Shaw, University College.
Raper, Matthew Henry, Middlesex Hospital.
Manning, Guy Eugene, Guy's Hospital.
Steward, Francis James, Guy's Hospital.
Stanley, Arthur, St. Mary's Hospital.
Mills, Yarnold Hubert, London Hospital.

Second Class.

Murray, Ernest Elias, University College.
Warner, Thomas, King's College.
Meakin, Harold Budgett, St. Bartholomew's Hospital.

Third Class.

Harris, Frank Drew, St. Mary's Hospital.
Hopkins, Frederick Gowland, Guy's Hospital.
Moffett, Elizabeth Jane, London School of Medicine and Royal Free Hospital.

* B.Sc. Scholarship and Gold Medal.
† Gold Medal.
‡ Scholarship and Gold Medal.
§ Obtained the number of marks qualifying for the University Scholarship.
N.B.—The bracket indicates equality of merit.

CAMBRIDGE UNIVERSITY.—The following degree was conferred on Friday, Dec. 7th:—

Doctor of Medicine.—Eustace John Park Olive, St. John's.

VACCINATION GRANTS.—Mr. William F. Hingston, M.D. Dubl., public vaccinator for Deptford, was awarded on the 10th inst. the Government grant for successful vaccination in his district.—Mr. J. R. White, A.B., M.B. Dubl., of Brentwood, has been awarded the vaccination grant for the third time.

MEDICAL MAGISTRATE.—Dr. John Howe-Hay has been appointed a magistrate for the Burgh of Alloa.

IT is proposed to found a Lodge of Freemasons upon the lines of the Bar, the Apollo and the Sir Isaac Newton lodges, for brethren who have received the whole or a part of their education at St. Bartholomew's Hospital. Gentlemen who are interested in the project are invited to attend a preliminary meeting to be held at 26, Bloomsbury-square, W.C., on Monday, Dec. 17th, at 4.30 P.M.

PRIZE ESSAYS ON ALCOHOL.—The Council of the British Medical Temperance Association offer three prizes of £5, £3, and £2 for essays on the Arguments for Total Abstinence from Alcohol derivable from Physiology. These prizes may only be competed for by any medical student in the United Kingdom who is now in his third winter session. The essays must not be longer than would fill six pages of the *Medical Pioneer* (long primer). They must be sent to the hon. secretary, Dr. Ridge, Enfield, Middlesex, on or before March 31st, 1895.

THE sale of the library of the late Mr. Edmund Yates is to take place at Messrs. Sotheby's towards the end of January. The collection is not, perhaps, one of any particular interest to the physician, while the pure bibliophile may not find much to attract him, there being few, if any, rare *editiones principes*, fine bindings, or early printed books; but the intending purchasers will find books, although almost entirely modern, ranging throughout nearly every class of literature. A desk, which once belonged to Charles Dickens, and a selection of the letters from Dickens to Yates, written between 1854 and 1870, will also be sold.

ST. JOHN AMBULANCE ASSOCIATION (GREAT WESTERN RAILWAY, PADDINGTON BRANCH).—Under the presidency of Lord Emlyn, one of the directors of the company, the distribution of the medals and certificates awarded to this class was performed by the Hon. Lady Gooch, who heartily complimented the members on the great efficiency they had attained, as shown by the number of awards, in the first season of their training. At the instance of the members her ladyship also presented their lecturer and trainer, Mr. Wicks of West Hampstead, with a handsome silver-mounted umbrella, bearing a suitable inscription, as a mark of their appreciation of his instruction.

SURGICAL AID SOCIETY.—The thirty-second annual meeting of the Surgical Aid Society was held on Tuesday afternoon last, at Cannon-street Hotel, under the presidency of the Lord Mayor, who said that among the many charities whose meetings it was frequently the duty of the Lord Mayor to attend there were, he believed, few more worthy of attention than the Surgical Aid Society. The subscribers had the satisfaction of knowing that what they gave was applied for the purpose for which it was given. The annual report, which was read by Mr. Tressider, the secretary, showed a continued growth in income and an increased number of benefited sufferers.

NEWCASTLE-UPON-TYNE CLINICAL SOCIETY.—There was a meeting of this society on Thursday, Dec. 6th, Dr. G. Murray, President, being in the chair.—Dr. Coley showed a case of well-marked Pseudo-hypertrophic Paralysis in a Boy.—Mr. Morison brought foward a case of Epithelioma of the Floor of the Mouth complicated with doubtful ulceration of the faucial pillars, probably syphilitic.—Mr. Morison also showed a case of Syphilis affecting the Epididymis on both sides.—The President showed cases of (1) Ataxic Paraplegia and (2) Early Myxœdema.—Dr. R. A. Bolam then gave a most interesting and instructive pathological demonstration with the aid of the projection microscope.

FOOTBALL CASUALTIES.—On the 5th inst., at Oxford, in a match between the Trinity and Magdalen teams, a player sustained a fracture of one of his legs.—On Saturday last the following accidents occurred. During a match between the Leeds Parish and the Leeds A teams at Crown-point, Leeds, the captain of the Leeds second team fractured one of his legs, and was removed to the infirmary.—At Sheriff-hill, near Gateshead, in a Rugby match between the Blaydon second team and Low Fell, a Blaydon forward received a serious injury to the "lower part of the body," resulting in death.—During the progress of a match at Blackpool, between the Blackpool and South Shore teams, a half-back had "the sinews of one of his knees cut through," and was taken to the hospital.—While playing at Halifax West End, a three-quarter back fractured his clavicle and sustained other injuries.

MR. JOHN DACRE, M.R.C.S., L.R.C.P., and Mr. Bertram M. H. Rogers, B.A., M.D., B.Ch., have been elected as members of the Committee of Management of the Bristol Hospital for Sick Children and Women for the year 1895.

ROYAL INSTITUTION.—Among the lectures announced for the season of Easter, 1895, we notice the names of Dr. G. Sims Woodhead, F.R.S.E., Mr. Clinton T. Dent, F.R.C.S., and Professor Charles Stewart, M.R.C.S., Professor of Comparative Anatomy and Physiology at the Royal College of Surgeons, England, and Conservator of the Museum, and President of the Linnæan Society. Professor Stewart's lectures, twelve in number, will be on the Internal Framework of Animals and Plants.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ABERNETHY, W. R., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Ballygawley Dispensary District, vice Beattie, resigned.

BATES, W. R., L.R.C.P. Lond., has been appointed Medical Officer for the Sanitary District of Addingham, of the Skipton Union.

BRIDGES, ERNEST C., M.B., B.Sc. Durh., M.R.C.S., L.R.C.P., has been appointed Junior House Surgeon to the Great Northern Central Hospital, Holloway-road.

CAMERON, R. W. D. M., M.D., C.M. Edin., B.Sc., Public Health, has been appointed Medical Officer of Health for the combined Counties of Wigtown and Kirkcudbright.

CARRÉ, L. J. GERARD, M.D. Brux., M.R.C.S., L.R.C.P., has been appointed Registrar and Anæsthetist at the Royal Hospital for Children and Women, Waterloo Bridge-road.

DACRE, JOHN, M.R.C.S., L.R.C.P., has been appointed House Surgeon for a further period of seven years to the Hospital for Sick Children and Women, Bristol.

DICK, J., M.D. Glasg., L.R.C.S., L.M. Edin., has been reappointed Medical Officer of Health to the Harrington Local Board.

DICKINSON, H. B., M.B. Lond., M.B.Ch.B. Vict., M.R.C.S., L.R.C.P., has been appointed Senior House Surgeon to the Bootle Borough Hospital.

EMERSON, HERBERT B., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Visiting Surgeon to the General Infirmary, Chester.

FARLEY, GEO. W., M.B., Ch.B. Roy. Univ. Irel., has been appointed House Surgeon to the Bangor Infirmary, North Wales.

FENTON, D., M.B., C.M. Edin., has been appointed Medical Officer for the Parish of Lairg.

GOULD, J. E., M.D. Lond., L.R.C.P., M.R.C.S., has been reappointed Medical Officer of Health for Chesterfield.

HARTILL, JOHN T., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health to the Willenhall Local Board.

HAYWARD, T. E., M.B. Lond., F.R.C.S., L.M., has been appointed Medical Officer to the St. Helen's Infectious Hospital, Haydock.

HUTLEY, CHARLES, M.R.C.S., L.R.C.P., has been appointed Junior House Surgeon to the Wakefield Clayton Hospital.

JONES, W. D., M.B., M.R.C.S., L.R.C.P., has been appointed Senior House Surgeon to the Wakefield Clayton Hospital.

KEMPE, C. M., M.R.C.S., has been reappointed Medical Officer of Health for the Third Sanitary District of the Steyning Union.

KNAPP, E. M. M., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Medical Officer of Health for Ross.

LOGAN, THOS., M.D. Aberd., L.F.P.S. Glasg., has been reappointed Medical Officer of Health for the North Bierley Urban Sanitary District.

MEDCALF, ERNEST S., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Medical Officer of Health for Hove.

PORTER, GEORGE, M.B. & C.M. Edin., has been appointed House Surgeon to Out-patients at the Hospital for Sick Children, Great Ormond-street, W.C., vice L. J. Gerard Carré, M.D. Brux., M.R.C.S., L.R.C.P., resigned.

POWERS, C. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health to the Sanitary District of the Kohne Cultram Urban Sanitary Authority.

ROGERS, BERTRAM M. H., B.A., M.D., B.Ch., has been appointed Pathologist to the Hospital for Sick Children and Women, Bristol.

SIMPSON, GEO. A. G., M.R.C.S., has been appointed Medical Officer of Health to the Acton Local Board.

STEELE, H. O., M.R.C.S., has been reappointed Medical Officer of Health for Gomersal.

WRIGHT, WM. H., L.R.C.P., L.M. Irel., M.R.C.S., has been reappointed Medical Officer of Health for the Alvaston and Boulton Urban Sanitary District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN, Birmingham.—Resident Medical Officer and Resident Surgical Officer. Salaries £70 and £50 respectively, with board, washing, and attendance at the Institution.

BOOTLE BOROUGH HOSPITAL.—Assistant House Surgeon and Dispenser. Salary £50 per annum, with board, washing, lodging, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Two Assistant Physicians.

HOSPITAL FOR WOMEN, Soho-square, London.—House Physician. Salary £30 for six months, with board, &c.

JESSOP HOSPITAL FOR WOMEN, Sheffield.—House Surgeon, unmarried. Salary £50 per annum, with board, lodging, and washing.

LEWES DISPENSARY AND INFIRMARY AND VICTORIA HOSPITAL.—Resident Medical Officer. Salary £110 per annum, with furnished apartments, coals, gas, and attendance.

LONDON COUNTY COUNCIL, THE ASYLUMS COMMITTEE.—Pathologist. Salary £700 per annum, with travelling expenses. Applications to the Clerk to the Asylums Committee, Office, 21, Whitehall-place, S.W.

MANCHESTER ROYAL INFIRMARY, DISPENSARY, and LUNATIC HOSPITAL or ASYLUM.—Honorary Obstetric Physician.

NORFOLK AND NORWICH HOSPITAL.—Assistant to House Surgeon for six months. Board, lodging, and washing provided. Applications to the House Surgeon.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Shoreditch, N.E.—House Physician for six months. At the expiration of this term the house physician will be required, if eligible, to serve as House Surgeon for a further period of six months. Salary as House Physician at the rate of £60 per annum, and as House Surgeon (the senior post) at the rate of £80 per annum. Applications to the Secretary, City Office, 27, Clements-lane, Lombard-street, E.C.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Board, apartments, and washing provided.

NOTTINGHAM BOROUGH ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, board, and washing.

ROYAL EAR HOSPITAL, Frith-street, Soho-square, London.—Honorary Anæsthetist.

ROYAL UNIVERSITY OF IRELAND, Dublin.—Examiners.

ROYAL FREE HOSPITAL, Gray's-inn-road, London.—Anæsthetist.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £80, rising £10 annually to £100, with board, residence, and laundry.

WEST BROMWICH DISTRICT HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, residence, and washing.

WEST HERTS INFIRMARY, Hemel Hempstead.—House Surgeon and Dispenser, who shall also be Assistant Secretary; unmarried, for two years. Salary £100 per annum, with board, furnished rooms, fire, lights, attendance, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—Resident Assistant, a qualified man preferred, for six months. Board, lodging, and washing provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Terms £60 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

AYLING.—On Dec. 9th, at Devonshire-street, Portland-place, W., the the wife of Arthur H. W. Ayling, M. and L.S.A. Lond., of a daughter.

BRUCE.—On Dec. 8th, at Goole, Yorks, the wife of R. Cathcart Bruce, M.B., of a son.

CHANDLER.—Od Nov. 28th, at Clopton House, Bury-road, Alverstoke, the wife of Surgeon-Captain Chandler of a son.

CLOWES.—On Dec. 10th, at Reading, the wife of Norton B. Clowes, M.R.C.S. and L.R.C.P., of a daughter.

HAWKINS.—On Dec. 10th, at 6, Streatham-hill, S.W., the wife of Alexander F. Hawkins, F.R.C.S.E., of a son.

JAMES.—On the 6th inst., at Hereford-road, Bayswater, the wife of Surgeon-Major James, Army Medical Staff, of a daughter.

SAUNDERS.—On Dec. 4th, prematurely, the wife of Henry Saunders, Surgeon, Deddington, Oxfordshire, of a daughter, stillborn.

STONE.—On Dec. 6th, at Sandfield, Reigate, the wife of Dr. Stone of a son.

MARRIAGES.

BEVERLEY—KEMP.—On Dec. 4th, at St. Martin's Church, Scarborough, by the Rev. C. C. Mackerness, M.A., W. H. Beverley, M.R.C.S. Eng., L.R.C.P. Lond., F.R.C.S. Ed., son of Robert Bewerley of Leeds, to Emma, only daughter of the late Eustace Kemp of Grantham. No cards.

COLBECK—WINEARLS.—On Dec. 6th, at St. Mary's Church, Henley-on-Thames, Edmund Henry Colbeck, B.A., M.D., of Porchester-terrace, Hyde-park, W., to Susanna Mary Winearls, second daugCter of Henry Winearls, of King's Lynn, Norfolk.

EMERSON—MARTYN.—On Dec. 11th, at St. Mary Abbots, Kensington, David North Bomford Emerson, M.B. Dub. Univ., of Melton House, Belgrave, Leicester, to Emily Constance Martyn, of Kensington-gate, W., youngest daughter of the late S. Edward Martyn.

DEATHS.

BROOKES.—On Dec. 11th, at the Council House, Shrewsbury, Andrew Good Brookes, F.R.C.S.E., in his 81st year.

HAWKINS.—On Dec. 7th, at Foxcote, Bournemouth, Dr. Francis Bissett Hawkins, aged 98.

WILKES.—On Dec. 8th, at his residence, Queen's-gardens, James Wilkes, F.R.C.S., aged 83.

WILLES.—On Dec. 6th, at South Eaton-place, S.W., George Irwin Willes, M.D., Deputy-Inspector-General of Hospitals and Fleets, Retired List.

WITHERS MOORE.—On Dec. 5th, at The Oaks, Burgess Hill, Sussex, William Withers Moore, M.D., J.P., aged 71.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 13th, 1894

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. in Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Dec. 7	29·85	S.W.	45	45	57	50	34	0·01	Foggy
,, 8	29·84	N.W.	44	43	61	49	44	0·19	Overcast
,, 9	30·10	E.	38	38	46	46	37	0·01	Overcast
,, 10	30·09	S.W.	45	44	54	48	38	...	Cloudy
,, 11	30·15	S.W.	45	44	57	50	44	...	Overcast
,, 12	30·06	S.W.	48	47	58	53	45	0·10	Cloudy
,, 13	30·16	S.W.	50	48	56	51	46	...	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), Gt. Northern Central (2.30 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North West London (2 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY.—SOCIETY OF MEDICAL OFFICERS OF HEALTH (20, Hanover-sq., W.).—7.30 P.M. Dr. T. M. Legge: Some Points of Difference between English and Continental Methods of Municipal Sanitary Administration.—Dr. Ransome: On the Limitation of Infectiousness of Phthisis.

TUESDAY.—ROYAL STATISTICAL SOCIETY (28, Jermyn-street, S.W.).—4.45 P.M. Mr. Geoffrey Drage: Alien Immigration.

PATHOLOGICAL SOCIETY OF LONDON.—8.30 P.M. Mr. S. G. Shattock: Tumour of Palate.—Dr. W. Collier: Enlarged Spleen.—Mr. C. H. Golding-Bird: Post-rectal Dermoid forming a Rectal Polypus.—Mr. Cecil F. Beadles: Malignant Tumours at the Base of the Skull.—Mr. J. H. Targett: Tumour of the Hypophysis Cerebri.—Dr. W. W. Ord: Subdural Hæmorrhage in Infantile Scurvy.—Mr. J. Jackson Clarke: Some Observations on the Repair of Tendons.—Dr. H. D. Rolleston: (1) Pharyngeal Pouch; (2) Diffuse Secondary Growth on the Dura Mater.

WEDNESDAY.—ROYAL METEOROLOGICAL SOCIETY (25, Gt. George-st., Westminster).—7.30 P.M. Mr. Robert H. Scott: Report of the International Committee on the Cloud Atlas.—Mr. Henry Southall: Rainfall and Floods in the Catchment Basins of the Severn, Wye, and Usk, November, 1894.—Mr. S. C. Knott: Meteorological Observations at Mojanga, Madagascar, 1892-1894.

ROYAL MICROSCOPICAL SOCIETY (20, Hanover-sq., W.).—8 P.M. Ordinary Meeting.

THURSDAY.—SOCIETY OF ANÆSTHETISTS (20, Hanover-sq., W.).—8.30 P.M. Dr. Bowles: Dangers connected with Respiration in Anæsthesia.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY.—SOCIETY OF ARTS.—8 P.M. Prof. Vivian B. Lewes: Modern Developments in Explosives. (Cantor Lecture.)

TUESDAY.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL (Gray's Inn-road).—Mr. Lennox Browne: Diphtheria.

WEDNESDAY.—NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3 P.M. Lecture by Dr. James Taylor.

LONDON SKIN HOSPITAL.—8 P.M. Dr. Sanctuary: Eczema.

SOCIETY OF ARTS.—8 P.M. Gen. J. Michael: Forestry.

THURSDAY.—HARVEIAN SOCIETY.—8.30 P.M. Mr. H. Page: On some Disorders of Nervous Function due to Injury and Shock. (Third Harveian Lecture.)

During the week marked copies of the following newspapers have been received:—*North Wales Chronicle, Liverpool Courier, Northern Echo, Durham County Advertiser, Shipping Gazette, Liverpool Mercury, Birmingham Gazette, Sheffield Independent, Brighton Gazette, Leicester Post, Agricultural Gazette, Public Health, Times of India, Builder, Citizen, Scotsman, Samoa Times (Apia, Samoa), Grantham Journal, Pioneer Mail, Architect, Levant Herald and Eastern Express, Leeds Mercury, Weekly Free Press and Aberdeen Herald, Yorkshire Post, Bristol Mercury, Reading Mercury, Morning, Liverpool Daily Post, Local Government Chronicle, Surrey Advertiser, West Middlesex Standard, Local Government Journal, Hertfordshire Mercury, Levant Herald, West Middlesex Advertiser, Sidney Mail, Westminster Gazette, Grimsby News, Sheffield Daily Telegraph, Weekly Irish Times, Saturday Falkirk Herald, Bacup Times, Southport Visitor, Macclesfield Courier, Pullen's Kent Argus, Grantham Times, Banffshire Journal, Bristol Times, Dundee Advertiser, &c. &c.*

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE.

UNDER no circumstances do the Proprietors authorise the insertion of loose advertisement circulars and handbills in THE LANCET. Any such announcements are inserted by the newsagents, whom the Proprietors cannot control. At the same time, the Manager will be glad if readers will send him copies of any circulars, with the name and address of the agent through whom they obtain THE LANCET, and the Manager will then endeavour to mitigate the nuisance.

TREATMENT OF HYDROPHOBIA.

Dr. F. Lucas Benham writes to us on the above subject with reference to a case of hydrophobia recorded in our columns last week. He regrets that the author did not make prompt use of one or other of the "methods of cure" which he (Dr. Benham) had collected in a paper contributed to THE LANCET of March 1st, 1890. In commenting on that paper at the time we confessed that the cases did not carry conviction to our mind of the efficacy of any of the methods in true rabies; and we see no reason to change that opinion.

Parental, knowing his son's bias, would have acted more wisely had he paid his fees by instalment rather than by composition. We think he would be ill advised to ask for a return of fees on the plea that he was not notified of his son's neglect of his studies; although under the circumstances it would be graceful on the part of the school to return a portion of the amount.

"*Ten Cases of Syphilis Acquired in Childbed.*"—We shall be obliged for the name and address of the author of a paper entitled as above, which has reached this office without any covering letter, or intimation of its authorship.

F.Z.S.—The particular vile pamphlet which our correspondent encloses has often been brought to our attention. We recommend that the Public Prosecutor be communicated with.

"THE USE OF MENTHOL IN TUBERCULOSIS."

To the Editors of THE LANCET.

SIRS,—In reply to the question of "F. I. R.," regarding the use of menthol in phthisis, I would refer him to Beehag's paper on the use of this drug as an intralaryngeal injection—*vide* "Medical Digest," Sect. 685:5; and also to a paper by Sharp, in THE LANCET of April 14th, 1894, and another by Downie, *Brit. Med. Jour.*, vol. i., 1891, p. 844.

I am, Sirs, obediently yours,
Boundary-road, N.W., Dec. 8th, 1894. R. NEALE, M.D. Lond.

To the Editors of THE LANCET.

SIRS,—If your correspondent, "F. I. R.," will refer to my opening address in the Section of Therapeutics of the British Medical Association meeting held in Nottingham in July, 1892,[1] he will find some information bearing upon the subject of his inquiry.

I may take this opportunity of saying that I have little doubt, from a clinical standpoint, of the inhibitory influence of menthol upon the bacilli of tubercle or their products; but I am bound to add that the effect is not permanent. The man referred to in my paper is at the present moment under my care in the General Hospital. He has remained well and at work as a lace-maker for eighteen months, and then had an attack of hæmoptysis. He was admitted with the physical signs of active disorganising changes in the apices of both lungs. After the bleeding had quite ceased and he had quieted down by rest in bed I began with the menthol injections, with the result that the lungs are getting drier and he is improving in general health and gaining weight.

I am, Sirs, yours faithfully,
Nottingham, Dec. 10th, 1894. J. O. BROOKHOUSE, M.D. St. And.

To the Editors of THE LANCET.

SIRS,—In reply to "F. I. R." I beg to state that several kinds of stearoptenes—as thymol, terpinol, eucalyptol, garajacol—have antibacteric, and particularly anti-tuberculous, properties. According to bacteriological researches made about three years ago, menthol is superior to all of them in specifically preventing the growth of Koch's bacillus. Since then menthol has been largely used on the Continent for local applications in tuberculosis of the mucous membranes. Solutions and powders containing from 10·50 per cent. of menthol are recommended as pigments, gargles, inhalations, insufflations, and snuffs. The internal administration of menthol in tuberculous phthisis of the lungs has first been tried by Monin and Daremberg, it is said, with very good results.

I am, Sirs, yours faithfully,
Crossfield-road, N.W., Dec. 10th, 1894. H. OPPENHEIMER.

Mr. Otto Holst.—We do not read the advertisement in that way. Our review is quoted as a report on the Annual for 1894, and, indeed, how could we review the 1895 Annual before its publication?

Mrs. Darling.—We cannot find that the case in question was noted in our columns.

WANTED, A DIAGNOSIS.

To the Editors of THE LANCET.

SIRS,—Will any of your readers suggest the pathological condition in the following case? L——, aged seventy-five, healthy and active, with feeble but otherwise healthy heart, suffered slightly for a month from colicky pains and some diarrhœa, never sufficient to lay her up. She was attacked at midday with vomiting, which soon ceased. On arrival I found the head and neck cyanosed. She had no pain, "only felt very ill." Good pulse, at 80; no oppression of breathing. I got her to bed, applied mustard over the heart and hot bottles to the extremities, which remained warm, and gave stimulants freely with amyl nitrite. She died in two hours, remaining conscious to the last and the pulse little affected, the only change being that during the last ten minutes the breathing became gradually slower till it ceased. No post-mortem examination was permitted. I am, Sirs, your obedient servant,
Dec. 10th, 1894. H. P.

A Reader of THE LANCET has omitted to enclose his name and address. There is a medical journal published at St. Paul's, Minnesota; with regard to Minneapolis we are not certain.

W. H. R. P. (Heywood).—We have been unable to find our correspondent's name on the Register, and he has omitted to mention his qualifications.

MUCUS IN THE EVACUATIONS.

To the Editors of THE LANCET.

SIRS,—I have a case of a young lady aged twenty-one years, who is convalescent from an attack of diphtheria. She is now, and I find on inquiry has been for the last twelve months (following an attack of influenza), passing a considerable quantity of stringy mucus with each evacuation of the bowels. She has been markedly constipated throughout that time, and has one or twice had attacks of what were at the time by the medical man called in considered to be acute dyspepsia. There is no history of dysentery. I shall be glad of information as to the causation, pathology, and treatment of the condition.

I am, Sirs, yours faithfully,
Dec. 12th, 1894. A READER.

EARLY INVERTING APPLIANCES.

To the Editors of THE LANCET.

SIRS,—THE LANCET of May 20th, 1843, stated that for Sir Benjamin Brodie an apparatus was constructed to invert Brunel, the celebrated engineer, during April and May, 1843, so as to get out the gold half-sovereign which had accidentally lodged in the respiratory tract. I shall be grateful for references from any of your readers to a detailed description or illustrations of this inversion apparatus and its predecessors in surgical science.

I am, Sirs, yours faithfully,
Brighton, Nov. 17th, 1894. J. LAWRENCE-HAMILTON, M.R.C.S.

"WANTED, AN ARTIFICIAL NOSE."

To the Editors of THE LANCET.

SIRS,—Your correspondent "A. J. T." should communicate with Mr. H. N. Grove, 18, Bennett's-hill, Birmingham. He showed some wonderful work in this direction in Birmingham last year.

I am, Sirs, yours faithfully,
Dec. 12th, 1894. MEDICUS.

*** We have received many other letters in answer to "A. J. T.'s" original query which we hope to be able to publish shortly.—ED. L.

[1] Brit. Med. Jour., July 30th.

Communications, Letters &c. have been received from—

A.—Amicus, Lond.; A. M. C.

B.—Dr. J. Braithwaite, Leeds; Dr. A. M. Buchanan, Glasg.; Dr. F. Lucas Benham, Lond.; Dr. T. H. Berry, Watford; Mr. F. J. Blight, Lond.; Mr. W. Brown, Lond.; Mr. D. Biddle, Kingston-on-Thames; Mr. E. G. Bulleid, Lond.; Mr. Lennox Browne, Lond.; Mr. W. Bernard, Londonderry; Mr. C. C. Burman, Lond.; Mr. E. C. Bousfield, Lond.; Mr. L. A. Bidwell, Lond.; Mr. T. B. Browne, Lond.; Mr. H. Bland, Nottingham; Mr. F. C. Binnie, Lond.; Messrs. Burgoyne, Burbidges, and Co., Lond.; Messrs. Brady and Martin, Newcastle-on-Tyne; Messrs. J. Beal and Son, Brighton; Messrs. Blondeau et Cie, Lond.; British Chamber of Commerce, Paris, Hon. Sec. of; British Institute of Public Health, Sec. of; Birmingham Free Hospital for Children, Sec. of; *Birmingham Daily Gazette*, Publisher of; B.A., Lond.

C.—Dr. H. Campbell, Lond.; Dr. J. Cagney, Lond.; Dr. D. W. Collins, Lond.; Dr. D. J. Caddy, Carriacou, West Indies; Mr. W. Watson Cheyne, Lond.; Mr. A. J. H. Crespi, Wimborne; Mr. G. Carlyon, Lew Down; Mr. H. W. Cox, Brighton; Messrs. T. Cook and Son, Lond.; Messrs. Crossley, Moir, and Co., Lond.; Messrs. A. Cowan & Sons, Lond.; Messrs. D. Currie & Co., Lond.; Messrs. Cassell and Co., Lond.; Central London Throat and Ear Hospital, Sec. of; Cosmosine Co., Manchester; Cumberland Infirmary, Carlisle; Climate, Lond.

D.—Dr. E. Deanesly, Wolverhampton; Dr. G. W. Davis, Sidcup; Mr. H. Dane, Northwood; Mr. Alban Doran, Lond.; Mr. A. H. Dodd, Brighton; Mr. T. Dixon, Lond.; Mrs. Darling, Lond.; Messrs. W. Dawson and Sons, Lond.; Messrs. F. W. Decker and Co., Lond.; Doctor, Lond.

E.—Dr. Edge, Maidenhead; Dr. C. R. Elgood, Windsor; Messrs. Eason and Son, Dublin.

F.—Dr. A. Foxwell, Birmingham; Dr. J. K. Fowler, Lond.; Dr. F. D. Fisher, Grantham; Mr. E. Hurry Fenwick, Lond.; Mr. A. Fournet, Lond.; Miss F. Forsaith, Lond.

G.—Dr. W. H. Gilbert, Baden; Dr. Albert Green, Chesterfield; Dr. Gastano, Brescia, Italy; Mr. H. N. Grove, Birmingham; Mr. M. H. Gordon, Petersfield; Mr. F. J. Gray, Walsall; Mr. R. Garnett, Lond.

H.—Dr. W. W. Hardwicke, East Molesey; Dr. G. Heaton, Birmingham; Dr. A. Haig, Lond.; Dr. W. F. Hingston, Deptford; Mr. Otto Holst, Eastbourne; Mr. T. Hebb, Lond.; Mr. J. Heywood, Manchester; Mr. W. Hutchinson, Lond.; Mr. G. W. Hambleton, Lond.; Mr. T. W. Heywood, Darwen; Mr. G. H. Hume, Newcastle-on-Tyne; Mrs. M. H. Hunt, Boston, Mass.; Messrs. Hopkinson and Co., Nottingham; Messrs. Hertz and Collingwood, Lond.; Messrs. C. J. Hewlett and Son, Lond.

I.—Dr. J. Ince, Swanley; Messrs. I. Isaacs and Co., Lond.; Incorporated Soc. of Med. Officers of Health, Hon. Sec. of.

J.—Sir George Johnson, Lond.; Mr. A. E. Jones, Crickhowell; Messrs. W. and A. K. Johnston, Edinburgh; Jessop Hospital for Women, Sheffield, Sec. of; Jeyes' Sanitary Compounds Co., Lond.

K.—Dr. Kelynack, Manchester; Dr. L. Kidd, Lond.; Dr. P. Kidd, Lond.; Messrs. G. Kelly and Co., Lond.

L.—Dr. R. C. Lees, Glasg.; Dr. J. F. Little, Lond.; Mr. H. Littlewood, Leeds; Messrs. Lee and Martin, Birmingham.

M.—Dr. W. Milligan, Manchester; Dr. W. Murrell, Lond.; Dr. P. W. MacDonald, Dorchester; Mr. H. Morris, Lond.; Mr. F. Marshall, Lond.; Mr. G. Morton, Lond.; Mr. Mansell Moullin, Lond.; Mr. J. A. MacDougall, Cannes; Mr. D. W. Marston, Zürich; Mr. S. M. Mukerji, Roorkee, N.W.P.; Mr. W. Monk, Lond.; Rev. H. D. McCheune, Staines; Metropolitan Asylums Board, Lond., Sec. of; *Medical Reporter*, Calcutta, Manager of; Manchester Royal Infirmary, Sec. of; Manchester Crematorium, Sec. of; Medical Association of India, Calcutta, Hon. Sec. of; Madrillo.

N.—Dr. J. Niven, Manchester; Mr. W. H. Nattle, Callington; Mr. E. N. Nason, Nuneaton; North Staffs Infirmary, Stoke-upon-Trent, Sec. of; National Typewriter Exchange, Lond., Manager of; Nottingham Boro' Asylum, Medical Superintendent of.

O.—Mr. Edmund Owen, Lond.; Mr. G. Olliver, Brighton; Messrs. Oppenheimer, Son, and Co., Lond.

P.—Mr. D'Arcy Power, Lond.; Mr. C. Pollard, Worcester; Mr. H. J. Palmer, Heath; Mr. Oliver Pemberton, Birmingham; Mr. W. H. R. Pearson, Heywood.

R.—Dr. A. J. Richardson, Brighton; Mr. H. Rundle, Southsea; Mr. H. A. Rawlins, Lond.; Mr. C. Ricker, St. Petersburg; Messrs. Reid and Donald, Perth; Messrs. Reynolds and Branson, Leeds; Royal Microscopical Society, Sec. of; Royal Aquarium, Lond., Sec. of.

S.—Dr. S. Smith, New York; Dr. T. S. Short, Birmingham; Mr. W. Severn, Lond.; Mr. N. Smith, Lond.; Mr. H. A. Smit, Lond.; Mr. F. Stevens, Lond.; Mr. E. J. Scully, Lond.; Shaw, Savill, and Albion Co., Lond.; Security Co., Lond., Gen. Manager of; Sanitary Institute Lond., Sec. of.

T.—Dr. E. S. Thompson, Lond.; Dr. H. Tibbits, Lond.; Mr. N. Taylor, Lond.; Mr. P. Thornton, Canterbury.

U.—University of London, Registrar of.

V.—Victoria Medical Society, Melbourne, Hon. Sec. of; Victoria Hospital, Folkestone, Sec. of.

W.—Dr. J. Wallace, Lond.; Dr. G. Sims Woodhead, Lond.; Dr. M. C. Ward, Twickenham; Dr. A. Wachter, Stafford; Mr. H. Whitley, Colchester; Mr. J. Warn, Tetbury; Mr. W. W. Wagstaffe, Sevenoaks; Mr. D. F. Whiteley, Salisbury; Messrs. Wright, Dain, and Co., Birmingham; Messrs. Waterlow and Sons, Lond.; Messrs. W. Wood and Co., New York; West Herts Infirmary, Hemel Hempstead, Sec. of; West Bromwich District Hospital, Sec. of; Wolverhampton General Hospital, Sec. of; *World, The*, Editor of, Lond.; Workhouse Infirmary Nursing Association, Hon. Sec. of.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. R. R. Anderson, Carmarthen; Mr. R. T. Annan, Stirling; Apollinaris Co., Lond., Sec. of; Ashwood House, Kingswinford, Med. Superintendent of; Amicus, Lond.; Alacrity, Lond.; A. M. O., Lond.

B.—Dr. W. Bannerman, London; Dr. A. G. Blomfield, Exeter; Dr. F. Bagshawe, St. Leonards; Mr. S. A. Bennett, London; Mr. W. Berry, Wigan; Mr. W. H. Beverley, Scarborough; Mrs. H. H. Berridge, Lond.; *British and Colonial Druggist*, Lond., Sec. of; British Home for Incurables, Streatham, Sec. of; B. A. H., Lond.

C.—Dr. E. N. Carless, Devizes; Dr. Clarke, Mountnugent, co. Cavan; Dr. A. F. S. Clarke, Camberley; Rev. C. Collingwood, Sunderland; Chirurgus, Lond.; C. M. M. B., Lond.; C. A., Birmingham; Cicero, Lond. C. M., Lond.; Cœlebs, Lond.

D.—Mr. W. F. Dale, Willing; Dundee Royal Asylum, Treasurer of; Droit, Lond.

E.—Dr. R. Eustace, Bournemouth; Mr. W. O. Evans, Liverpool; English Doctor, Antwerp.

F.—Mr. W. P. Flynn, Eastbourne; Messrs. Fannin and Co., Dublin; Faculty of Physicians and Surgeons, Glasgow, Sec. of; F., Lond.

G.—Mr. A. E. Graham, Tow Law; Mr. W. George, Prestontille; Messrs. Goddard Bros., Peterborough; Messrs. Gilyard Bros., Bradford; Galen, Lond.; G. L., Lond.; Glaucus, Bath.

H.—Dr. J. T. Harvey, Broken Hill, Australia; Mr. A. F. Hawkins, Lond.; Mr. W. C. Hughes, Kingsland; H. B., Lond.; H. E., Dewsbury; H. E., Lond.

J.—Dr. Joyce, Letterkenny; Dr. Jaques, Melton Mowbray; Mr. T. A. Jones, Lond.; J. H., Lond.; J. E., Bootle.

K.—Mr. R. C. B. Kerin, Lond.

L.—Dr. J. D. Leigh, Edenbridge; Mr. R. A. E. Lowry, Londonderry; Leith Burgh, Treasurer of; London Temperance Hospital, Sec. of; Locust, Lond.

M.—Manchester Southern Hospital, Sec. of; Medicus, Dublin; Medicus, Lond.; Medicus, Sohosquare.; M.B., London; Medicus, Liphook.

N.—Dr. J. S. M. Nurse, Anguilla, W.I.; N. D., Lond.

P.—Mr. H. J. Palmer, Heath; Mr. A. Parmer, Lond.; Practice, Lond.

Q.—Q., Lond.

R.—Dr. E. B. Rowland, New Amsterdam, Berbice, British Guiana; Mr. T. L. Read, Lond.; Mr. F. H. Rotherham, Coventry; Messrs. J. Richardson and Co., Leicester; R. C., Lond.

S.—Mr. T. Sykes, Harrogate; Messrs. S. R. Schofield and Co., Horley; Sextus, Lond.; S. S. S., Birkenhead; Splints, Lond.

T.—Mr. J. Thin, Edinburgh; Miss Tough, Lond.; Theta, Lond.; Truth, Charlton.

U.—University College of South Wales, Cardiff, Registrar of.

W.—Dr. W. H. Williams, Llanfair; Mr. R. Willoughby, Lond.; Miss J. Warn, Tetbury.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year	£1 12 6
Six Months	0 16 3
Three Months	0 8 2

POST FREE TO THE CONTINENT, COLONIES, UNITED STATES, INDIA, CHINA, AND ALL PLACES ABROAD.

One Year	£1 14 8
Six Months	0 17 4
Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to Mr. CHARLES GOOD, Manager, THE LANCET Office, 423, Strand, London.

ADVERTISING.

Books and Publications...	... Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6
Front Page (Books only) ...	Five Lines and under	0 5 0
	Every additional Line	0 1 0
Quarter Page	... ...	1 10 0
Half a Page	... ...	2 15 0
An Entire Page	... ...	5 5 0

The Manager cannot hold himself responsible for the return of testimonials &c. sent to the office in reply to advertisements; copies only should be forwarded.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post Offices letters addressed to initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Terms for Serial Insertions may be obtained of the Manager, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 8, Rue Traversiere, Asnières, Paris.